BULLETIN

OF

THE AGRICULTURAL AND MECHANICAL
COLLEGE OF TEXAS

THIRD SERIES, VOL. 8. FEBRUARY 1, 1922 No. 2.

THE SUMMER SESSION

June 12—September 2, 1922.

The College (Twelve Weeks).
The School of Cotton Classing (Six Weeks).
The School of Grain Grading (Six Weeks).
The Eight Weeks Course in Automobiles and Tractors.
The Farm Boys' Division (Four Weeks).
The Course for County Agents (Six Weeks).
The Farmers' Short Course (One Week).
The Short Course for Electric Metermen (One Week).

COLLEGE STATION, TEXAS

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Cadet Corps on Lawn in Front of Academic Building.

GENERAL STATEMENT.

The summer session of the Agricultural and Mechanical College of Texas has been established for the following well-defined purposes:

1. To provide courses of instruction in all phases of agriculture and the allied sciences, and in automobiles and tractors, manual training, cotton classing, grain grading, rural sanitation, rural economics, and rural social science, for the benefit of teacher, rural ministers, county and local officers, farmers, farm boys, farm women, rural merchants, and others who may be interested in any phase of agricultural or rural development.

2. To offer to young men having sufficient preparation the opportunity of taking courses for college credit, and also to permit students of the college to remove deficiencies or to pursue courses toward graduation.

3. To provide the opportunity for graduate work in a limited number of courses carrying credit toward the degree of Master of Science.

The summer session will begin June 12, 1922.

CALENDAR.

Summer Session, 1922.

June 12—Registration Day for College Division, Cotton Classing School, Grain Grading School.

July 3—Farm Boys' Division begins.

July 4—Holiday.

July 22—First term ends.

July 24—Farmers' Short Course begins.

July 24—Second term begins.

July 29—Farm Boys' Division and Farmers' Short Course end.

Sept. 2—Second term ends.

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

WILLIAM BENNETT BIZZELL, Ph. D., D. C. L., LL. D.,
President.

SUMMER SESSION, 1922.

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Instructor in Agronomy.

GENERAL INFORMATION.

ORGANIZATION.

The work of the 1922 summer session will be given in the following eight divisions:

1. The College.
2. The School of Cotton Classing.
3. The School of Grain Grading.
4. The Eight Weeks Course in Automobiles and Tractors.
5. The Farms Boys' Division.
6. The Course for County Agents.
7. The Farmers' Short Course.
8. The Short Course for Electric Metermen.

ADMISSION REQUIREMENTS.

In the College division courses will be offered subject to the same general requirements as in the regular session.

To enter the eight weeks course in automobiles and tractors the student must be sixteen or more years old, and must present a certificate from some reliable person showing that he is in good standing in his community.

The work of the Farm Boys' division is open only to boys not under fourteen or over eighteen years of age.

To enter the course for County Agents, the student must meet the minimum educational requirement, which is the equivalent of a first grade teacher's certificate.

There are no fixed requirements for admission to the School of Cotton Classing, the School of Grain Grading, or the Farmers' Short Course.

DISCIPLINE.

Every student in the summer session is expected at all times to conform to the ordinary rules of propriety and gentlemanly conduct; to be truthful; to respect the rights of others; to be punctual and regular in attendance upon all required exercises; to apply himself diligently to his studies; and to have due regard for the preservation of College property.

For improper conduct, or failure to keep up with his studies, a student may at any time be required to withdraw from the College.

BOARD AND ROOM.

Students of the summer session will take their meals in the main dining hall. This hall is conveniently located with reference to dormitories, lecture rooms, and laboratories.

Room accommodations will be provided for summer session students in new, modern, fireproof dormitories. These buildings are modern in every

respect, including screens for protection against mosquitoes and flies, sewage connection, electric lights and running water. These dormitories will be in direct charge of a summer session official, who will see that study hours are observed and that proper conditions for work are maintained.

The cost of room and board for the six weeks term will be $48.00. This does not include laundry. Bed linen, pillows and towels will be furnished by the student. All beds are single.

LOCATION.

The Agricultural and Mechanical College of Texas is located at College Station, on the Houston and Texas Central Railroad, and on the Fort Worth division of the International and Great Northern Railroad, ninety-two miles north of Houston. Both railroads run through the College grounds. The stations are only a short distance from the Academic building. At College Station there are express, telegraph and money order offices.

COLLEGE FACILITIES.

All the educational facilities of the College will be placed at the disposal of the students of the summer session. The College plant consists of twenty-seven brick buildings. Nine of these are used for dormitories and eighteen for purposes of instruction. All buildings used for instruction are well equipped with laboratories. The Horticultural gardens, Agronomy plots, and Greenhouses are conveniently located, and form a part of the outside facilities for instruction.

The library of the College consists of the central collection, and several departmental libraries. The general library is housed in the Academic building and consists of about 17,000 volumes devoted to general literature and reference work. All the leading magazines and a number of daily papers are received at the library. All College departments have well-selected technical libraries for the use of students interested in special subjects. The general library will be open during the summer session on week days from 9 a. m. until 5 p. m., and from 8 to 10 p. m. Departmental libraries will be open from 8 a. m. to 5 p. m.

The College Exchange Store, located on the first floor of the Academic building, will carry a complete line of text-books, reference books, stationery and general supplies needed by summer session students.

The modern, well-equipped College Hospital will be kept open during the entire summer session and the College physician and nurse will be on duty to serve the needs of summer session students.

PUBLIC LECTURES.

Lectures on pedagogical, sociological, and agricultural subjects will be given by the members of the teaching staff and by others invited for this purpose.

On each Sunday morning a regular Bible School will be conducted at the College and religious services will be conducted in the College Chapel by visiting ministers.

ENTERTAINMENT.

Two motion picture shows will be given each week. An open air theatre has been provided for all picture shows and other evening entertainments. The Y. M. C. A. will be open all summer and a number of social gatherings will be held in the lobby of this building. The large swimming pool in the basement of the Y. M. C. A. building will be available for the use of the summer session students during the entire session. The instructor in athletics will give lessons in swimming to those who desire them. Outdoor athletic sports will be encouraged. The summer session is a member of a small baseball league and games are played with local teams.

EXPENSES.

For students in the College Division and the Course for County Agents.

Incidental fee	$10.00
Medical fee	2.50
Room and board per term of six weeks	48.00

For the Eight Weeks Course in Automobiles and Tractors.

Incidental fee	10.00
Medical fee	2.50
Room and board for term of eight weeks	64.00
Laboratory fee	60.00

For the School of Cotton Classing.

Laboratory fee	25.00
Medical fee	2.50
Room and board per term of six weeks	48.00

For the School of Grain Grading.

Laboratory fee	25.00
Medical fee	2.50
Room and board per term of six weeks	48.00

For the Farm Boys' Division.

Incidental fee	5.00
Medical fee	2.50
Room and board per term of four weeks	32.00

Each student in the summer session will be required to deposit a trust fund to cover breakage of laboratory material or damage to College property. The amount of this deposit is $10.00 for students taking the eight weeks course in Automobiles and Tractors, and $5.00 for all other students. The unused portion of this will be refunded by mail as soon after the close of the summer session as the fund can be checked up.

A student once entering the summer session for a term, and having paid for that term, or the balance of it, forfeits all claim to said payment in case of voluntary withdrawal from the College before the expiration of said term, *except in case of sickness disqualifying him for the discharge of his duties for the rest of the term.* When such sickness takes

place at the College, it must be attested by the College Surgeon before the student can receive the balance of his maintenance fund.

HOW TO REGISTER.

1. Report to the Business Manager, Room 120, first floor Academic building, and pay your fees. Be sure and specify the *Division* of the Summer Session you are entering. The Business Manager will give you a receipt, and a meal ticket.
2. Present your receipt to the Commandant, Room 101, first floor Academic building, for assignment to room.
3. Present your receipt to the Registrar, Room 223, second floor Academic building, and obtain an Assignment Card.
4. Take your Assignment Card to the Director of the Summer Session, Room 210, second floor, for assignment to classes.
5. Report promptly to all classes, as per the official schedules.
6. If further information is needed consult the Registrar, or the Director of the Summer Session.

All official notices concerning the Summer Session will be posted on bulletin boards Nos. 5 and 6, first floor Academic building.

All inquiries relative to the Summer Session should be addressed to the Director of the Summer Session, or the Registrar, College Station, Texas.

THE COLLEGE.

(June 12 to September 2.)

Two groups of courses will be given in this division, as follows:

1. Courses carrying credit toward graduation.
2. Courses carrying credit toward a certificate in agriculture.

All courses in this division are open only to those who have had the prerequisite training. The work will be given in two terms of six weeks each. The first term will begin June 12 and will end July 22. The second term will begin July 24 and will end September 2.

The maximum amount of work a student may carry in a six weeks term is the equivalent of eight term hours, except in the case of men who have had approved teaching experience; with the consent of the Director of the Summer Session such men may carry the equivalent of nine term hours. All rules of the regular session apply to the Summer Session in the matters of prerequisites, grades, examinations, and class absences. Three cases of tardiness to class will be counted as one absence.

All work in the Summer Session must be taken in accordance with the published schedule.

The last day on which a student may complete his registration for work in the College Division is Friday of the first week of each term. All students, except those registering for the first time, who do not complete their registration on the first day of each term will be charged a fee of five dollars for late registration.

The right is reserved to withdraw any course for which less than five students register.

The courses for the first six-weeks term, which carry credit toward graduation are as follows:

NOTE.—The figures in parentheses following the name of a course indicate the number of hours per week, theory and practice, respectively, devoted to the course.

AGRICULTURAL ENGINEERING.

203S. Gas Engines. (5-5). Credit, 3 term hours.

This course will deal with the farm gas engine, its operation, care and repair.

Laboratory practice will consist of the operation, testing and examination of the different types of farm gas engines.

Laboratory fee $1.50.

315S. Farm Shop. (3-15). Credit, 4 term hours.

This course is especially designed for those intending to teach agricultural engineering in vocational schools. The work will include such subjects as are usually taught in vocational high schools, such as soldering, tinning, erection of line shafting, belt lacing, power transmission, pipe fitting, gas engines, fundamental principles in the care and opera-

tion of farm machinery and sufficient forging to enable the student to make ordinary farm repairs.

Laboratory fee $2.50.

Student Practice in Farm Machinery.

314S. Tractors. (5-10). Credit, 4 term hours.

In this course a study will be made of the design, operation and repair of different types of gas tractors.

Laboratory practice will consist of a study of the different parts of, together with the testing and operating, gas tractors.

Laboratory fee $2.00.

Prerequisite: Agricultural Engineering 306S.

AGRONOMY.

301S. Soils. (6-5). Credit, 5 term hours.

This course gives the student a rather comprehensive knowledge of the soil and its management. It is given according to the following outline:

(a) The soil as a medium for root development, including a study of rock and its products; the soil mass, together with the physical properties of the soil and their modification; the organic content of the soil.

(b) The soil as a reservoir for water, including the functions of water in plant growth; the amount of water in the soil; the movement of soil water, and the control of soil water.

(c) Plant nutrients in the soil, including a careful study of both micro-organisms and macro-organisms, as they influence soil productiveness.

(d) The soil air; composition and functions of.

(e) The heat of the soil; comprising a study of the sources, functions and means of modifying soil temperature.

(f) External factors in soil management; tillage, crop adaptation, etc.

Text: Soils, Lyon, Fippin, and Buckman.

In the laboratory the student applies the principles learned in the class room to the actual management of soils.

Laboratory fee $0.50.

Prerequisite: Chemistry 101S, 102S.

ANIMAL HUSBANDRY.

103S. Live Stock Production (Beef Cattle and Sheep). (5-10). Credit, 4 term hours.

A general course briefly covering the various phases of beef cattle and sheep production, including judging, breeding, care, and management. This course is especially designed to meet the needs of students taking Agricultural Education.

Text: Types and Market Classes of Live Stock, Vaughan.

202S. Judging Breed Types of Horses, Cattle, Sheep and Swine. (5-5). Credit, 3 term hours.

The lectures in this course treat of the origin, history, characteristics and adaptability of the various breeds of live stock. As far as the equip-

The Judging of Live Stock is the Foundation Work for all Other Animal Husbandry Subjects.

ment in live stock will permit, the student is shown by means of representative animals the best types of the breeds of horses, cattle, sheep and swine.

Text: Types and Breeds of Farm Animals, Plumb.

The score cards of the different breed associations are used in determining the merits of the animals, and these are further explained in the lectures. An important part of the practice consists of comparative judging similar to that of the show ring.

Prerequisite: Animal Husbandry 101S, 102S.

409S. Animal Nutrition and Live Stock Feeding. (6-5). Credit, 4 term hours.

This is a combined course, involving the principles of animal nutrition and a study of the feeding of all classes of farm animals, cattle,

horses, sheep, and swine. The subject of animal nutrition, the composition of available feeding stuffs, and the calculating of rations are treated fully.

Text: Feeds and Feeding, Abridged, Henry and Morrison.

The practice consists of calculating rations; studying the results of feeding tests conducted by this and other Experiment Stations; and studying practical feeding operations.

104S. Live Stock Production (Hogs and Horses). (5-10). Credit, 4 term hours.

This is a continuation of Animal Husbandry 103S, page 15, covering hogs and horses.

201S. Farm Poultry. (5-5). Credit, 3 term hours.

This is a general course on Farm Poultry and treats of the breeds and types of poultry; the principles of breeding and mating of fowls; incubation and brooding; feeding for growth and egg production; winter and summer management; housing and hygiene; sanitation; disease; parasites and their treatment; preparing poultry for market, marketing.

BIOLOGY.

101S. General Botany. (5-10). Credit, 4 term hours.

The aim of this course is to provide the student who looks forward to entering some field of work in Agriculture with an accurate and thorough knowledge of living plants. The point kept steadily in view is, therefore, physiologic rather than anatomic. The first term begins with an outline of the external and internal form and structure necessary to the more extended study of life processes of plants. In the second term, types of various subdivisions of the plant kingdom are used to illustrate the great fundamental principles of development and adaptation, and to serve as a foundation for later work in classification.

The plan of the laboratory work is based on the inductive principle; the student is trained to acquire facts of development, structure and function by direct observation. Each student is required to keep a notebook in which he records by drawings and notes the results of his work.

Text: Nature and Development of Plants, Curtis.

Laboratory fee $0.50.

CHEMISTRY.

101S. General Inorganic Chemistry. (6-8). Credit, 4½ term hours.

In this course the foundation principles of all chemical activity are fully discussed and demonstrated. The chemical elements and their compounds are then taken up separately and systematically. Industrial applications of the more important chemical processes are briefly described and organic chemistry is touched upon. This course must precede all other chemical studies. An elementary course in physics should precede or accompany this course.

Text: General Chemistry for Colleges, Alex Smith.

General laboratory work, duplication of lecture experiments, and simple tests of technical importance.

Laboratory fee $3.50.

206S. Organic Chemistry. (6-5). Credit, 4 term hours.

The subject is treated primarily as a pure science. An effort is made to select for illustrations such compounds as are of interest to the student of agriculture.

Text: Organic Chemistry, Moore.

In the laboratory a study is made of the properties and typical reactions of the compounds discussed in the lectures.

Laboratory fee $2.50.

Prerequisite: Chemistry 101S, 102S.

CIVIL ENGINEERING.

300S. Field Practice. 3 Weeks.

This course includes the care, management and use of surveying instruments in making land, topographic and triangulation surveys, particular attention being paid to stadia and plane table methods.

Practical working conditions are approximated by requiring a full working day in the solutions of special problems in the several different surveys. Areas are computed, topography platted and maps made. The true meridian is determined by observations on the sun and Polaris. Each student is required to become reasonably proficient in the use of the surveyor's compass, transit, level and plane table.

Reference text: Principles and Practice of Surveying, Vol. 1, Breed and Hosmer, together with additional notes by the instructors.

Laboratory fee $1.00.

400S. Field Practice. 3 Weeks.

A practice course in which effort is made to approximate actual working conditions of preliminary and location surveys.

This class is required to complete exercises in railroad surveying; river gauging; road and street location; mapping. Each student is drilled in the use of the transit and level in running preliminary and location lines; with the surveyor's compass and pocket sextant in taking topography. Instruction is given in cross-sectioning, staking out bridge openings, running drainage areas and determining the size of drainage openings. The care and adjustment of instruments is reviewed and observations on the sun and Polaris for determining the true meridian and latitude are repeated. Additional problems of benefit to the student will be assigned when time permits.

Reference texts: Field Manual for Railroad, Nagle; Notes on Railroad Summer Practice, Love.

Laboratory fee $1.50.

DAIRY HUSBANDRY.

102S. Dairying. (6-5). Credit, 4 term hours.

A course dealing with the secretion of milk, and the composition of milk and its products; the use and application of the lactometer in the

determination of the total solids and adulterations; the various methods of cream raising and separation.

Text: Milk and Its Products, Wing.

Laboratory fee $0.50.

DRAWING.

101S. Mechanical Drawing. (0-8). Credit, 1½ term hours.

Care and use of drawing instruments, simple exercises in the use of drawing instruments, instrumental and free-hand lettering, geometrical constructions, construction of plane curves, orthographic and axonometric projections.

Text: Mechanical Drawing, Part I, Giesecke.

102S. Mechanical Drawing. (0-8). Credit, 1½ term hours.

Problems in descriptive geometry involving points, lines, planes, tangency, intersections of planes and solids, intersections of solids, development of surfaces, shades and shadows, linear perspective. This course is parallel to and is an application of courses 103S and 104S.

Text: Instrumental Exercises Descriptive Geometry, Mitchell.

103S. Descriptive Geometry. (5-0). Credit, 2 term hours.

Class-room exercises, quizzes, and lectures on general and special problems relating to points, lines, planes and solids; problems in shades and shadows and in perspective. Special attention is paid to the representation of objects by orthographic projection, in the first and third angles.

Text: Descriptive Geometry, Giesecke and Mitchell.

104S. Descriptive Geometry. (5-0). Credit, 2 term hours.

A continuation of Drawing 103S.

105S. Free-hand Drawing. (0-3). Credit, ½ term hour.

Drawing from geometrical solids, common objects, plaster casts, still life, to study form, proportion, light and shade; in the second term special attention is given to measuring, dimensioning and describing machines, machine parts, engineering structures and details.

The course is varied to meet the practical needs of students in the different engineering departments.

106S. Free-hand Drawing. (0-3). Credit, ½ term hour.

A continuation of Drawing 105S.

201S. Mechanical Drawing. (0-8). Credit, 1½ term hours.

Standard conventional section lining, drawing of standard bolts, nuts, rivets and threads; helixes, elementary parts of machines and engineering structures; details and assemblages; Patent Office drawing, tracing, blue printing. The student is required to carefully sketch and measure his model in the drawing room, shop or field. From his dimensioned sketch he makes, on detail paper, traces and blue prints his working drawing.

The course is varied to meet the practical needs of students in the different engineering departments.

Text: Mechanical Drawing, Part III, Giesecke.

Reference text: Engineering Drawing, French.

Prerequisite: Drawing 101S.

202S. Mechanical Drawing. (0-8). Credit, 1½ term hours.
A continuation of Drawing 201S.

317S. Mechanical Drawing. (0-8). Credit, 1½ term hours.
Elementary architectural drawing, including plans, elevations, sections, window and door details, structural steel construction, masonry construction, carpentry, etc.

318S. Machine Drawing. (0-8). Credit, 1½ term hours.
Correct representation of objects; approved methods of dimensioning drawings; sketching and measuring machine parts; standard conventions; cycloidal and helical curves; screw threads, spur wheels, bevel and worm gears, cam construction.
Text: To be announced.
Prerequisite: Drawing 201S and 101S.

ECONOMICS.

306S. Fundamental Principles. (8-0). Credit, 3 term hours.
This course consists of the theory of economic activities concerning production, distribution, and consumption; and the practical problems of credit, banking, foreign exchange, monetary systems, co-operation, tariff, transportation, trusts, corporations, and finance and taxation. The assignments in the text will be supplemented by expositions and explanations by the instructor, and by reports by the students.
Text: Principles of Political Economy, Gide.

202S. Business Law. (5-0). Credit, 2 term hours.
This course is especially fitted for those who plan to enter general business practice, but is important in all spheres of American life. Such subjects as the following are studied: the nature and scope of law, contracts, sales, agency, negotiable instruments, employment, partnership, personal property, real property, wills and inheritances, surety, bankruptcy, etc.
Text: Business Law, Conyngton.

ENGLISH.

103S. Rhetoric and Composition. (6-0). Credit, 3 term hours.
This course involves recitations, oral and written, readings from masterpieces of literature, and composition writing.

104S. Rhetoric and Composition. (6-0). Credit, 3 term hours.
A continuation of English 103S.

ENTOMOLOGY.

201S. General Entomology. (5-5). Credit, 3 term hours.
In this course the student is taught the systematic position of the various insects. The relation of the anatomy of insects to control meas-

Peach Orchard where Summer Session Students are given Instruction in Orchard Management.

ures is also studied. The life histories of the more common insects are given together with the methods of control for the injurious forms.

Text: Elementary Entomology, Sanderson and Jackson.

Laboratory fee $0.50.

304S. Apiculture. (5-5). Credit, 3 term hours.

This course is so arranged as to give the student a practical working knowledge of beekeeping which will prepare him for conducting a small apiary in connection with other farm work or for entering commercial beekeeping as a vocation. The course includes a study of the biology and life history of the honey bee, methods of making hives and equipment, management of swarming, honey plants, harvesting and marketing of honey, wax production and refining, control of bee diseases and elementary queen-rearing. The department is equipped with an apiary of medium size, hives, tools, wax-presses, automatic extractors and standard equipment used in modern beekeeping.

Text: Beekeeping, Phillips.

FARM MANAGEMENT.

402S. Farm Management. (6-10). Credit, 5 term hours.

Farming as a business. This course covers in condensed form the application of principles taught in the various agricultural subjects to the business management of the farm. It also includes such problems as size, diversity and quality of business, labor efficiency and farm layout.

HORTICULTURE.

201S. Plant Propagation and Orcharding. (6-5). Credit, 4 term hours.

Lectures and recitations are given on the fundamental principles and method of plant propagation, including vegetables, fruit and ornamentals. The methods of planting and managing the home orchard are also covered.

Lectures and recitations.

Practice is given in propagation of plants from seed, budding, grafting and in planning, planting, pruning, spraying and general care of the home orchard.

Text: Plant Propagation, Kains. Lectures.

Laboratory fee $0.75.

Prerequisite: Biology 101S, 102S.

202S. Vegetable Gardening. (6-5). Credit, 4 term hours.

Detailed instruction in planting, equipping and operating vegetable gardens for home and commercial purposes, and practical demonstrations and experience in the field; a thorough discussion of the methods used in Texas in growing the most important vegetable crops.

Text: Lectures and recitations.

The practice is devoted to the building of hotbeds, cold frames, the mixing and application of fertilizers, planting, cultivating, spraying and harvesting of vegetable crops.

Laboratory fee $0.50.

MATHEMATICS.

101S. Algebra. (6-0). Credit, 3 term hours.

A rapid review of elementary topics, followed by the study of quadratic equations, the binomial theorem, variation, the progressions; complex numbers, theory of equations, logarithms, limits, undetermined coefficients.

Review of certain topics of preceding courses.

Text: College Algebra, Rietz and Crathorne. Supplementary exercises.

102S. Algebra. (6-0). Credit, 3 term hours.

A continuation of Mathematics 101S.

103S. Plane Trigonometry. (6-0). Credit, 3 term hours.

Goniometry, review of logarithms, solution of right triangles, problems of heights and distances, properties of triangles, solution of oblique triangles, geometrical applications.

Text: Plane and Spherical Trigonometry, Taylor and Puryear.

104S. Analytics. (6-0). Credit, 3 term hours.

The straight line, transformation of co-ordinates, circle, ellipse, parabola, hyperbola, graphs of trigonometric, logarithmic and exponential functions, tangents.

Review of certain topics of preceding courses.

Text: Analytic Geometry, Riggs. Supplementary exercises.

Prerequisite: Mathematics 101S, 103S.

203S. Calculus. (6-0). Credit, 3 term hours.

Differentiation, limits, infinitesimals, integration, maxima and minima, areas, volumes, water pressure, work, introduction to solid geometry, moment of inertia, center of gravity, radius of curvature, elementary examples of differential equations.

Review of certain topics of preceding courses.

Text: Calculus, March and Wolff. Supplementary exercises.

Prerequisite: Mathematics 104.

204S. Calculus. (6-0). Credit, 3 term hours.

Same as Mathematics 203S.

MODERN LANGUAGES.

311S. French. (6-0). Credit, 3 term hours.

Grammar and easy reading.

312S. French. (6-0). Credit, 3 term hours.

Same as Modern Language 311S.

315S. Spanish. (6-0). Credit, 3 term hours.

Grammar and easy reading.

316S. Spanish. (6-0). Credit, 3 term hours.

Same as Modern Language 315S.

PHYSICS.

203S. General. (6-8). Credit, 4½ term hours.

A general course in mechanics, heat, light, electricity and magnetism for engineering students.

In this course particular stress is laid on the derivation of the various formulas necessary for a thorough understanding of the mathematical relations existing in physical determinations. Much emphasis is placed on practical problems furnished by the instructors.

The practice includes about thirty experiments in the subjects named above. The work is, in general, quantitative.

Text: College Physics, Reed and Guthe.

Laboratory fee $1.00.

Prerequisites: Mathematics 101S, 103S.

204S. General. (6-8). Credit, 4½ term hours.

A continuation of Physics 203S.

Laboratory fee $1.00.

RURAL SOCIAL SCIENCE.

401S. Rural Economics. (5-5). Credit, 3 term hours.

This course together with 402 is intended to give the student some understanding of the social and economic problems of country life, and to put him in touch with the movements and agencies now dealing with these problems. The work begins with an analysis of the conditions, forces and agencies influencing the life of the country dweller and of the country community. A detailed study is then made of each of these influences. This study will include consideration of the more important rural economics problems, such as land policies, tenancy, agricultural credit, market problems, co-operative organizations, farm bureau activities, etc. Each student is expected to acquaint himself with the best literature bearing on each topic studied and then to formulate a definite program for dealing with the problem in some concrete situation.

Prerequisite: Economics 306S.

402S. Rural Sociology. (5-5). Credit, 3 term hours.

In this course, which should be regarded as a continuation of 401S, the chief emphasis will be given to the social problems of country life. A detailed study will be made of population questions; cityward drift; rural social mind; health problems; recreation; community organization; rural leadership; rural social institutions, the home, the school, the church, the press, etc. Each student on the basis of all obtainable facts as to the local situation, and in the light of the best examples of community organization will be expected to formulate a definite long-time program for promoting the progress and development of some actual community in which he is interested.

Prerequisite: Rural Social Science 401S.

TEXTILE ENGINEERING.

101S. Cotton Classing. (0-5). Credit, 1 term hour.

This course includes practice in grading and stapling cotton, the methods of handling the cotton crop from the field to the mill, and other subjects of general interest to a cotton student will be presented in lecture form.

Laboratory fee $0.50.

VETERINARY MEDICINE AND SURGERY.

371S. Clinics. (0-18). Credit, 3½ term hours.

Hospital service is required of all students taking this course. They must give daily attention to cases assigned. In addition to hospital duty, laboratory diagnosis and post-mortem examination will be required whenever necessary. An ambulatory clinic is maintained. Students will, as occasion may require, make trips to other parts of the State to observe and study outbreaks of diseases. Cases in clinic are treated under hospital conditions. When necessary they are held for observation and study; thus the student is given an opportunity to see the entire course of the diseases and the results of treatment. About fifteen hundred cases of non-infectious diseases, infectious diseases, and surgical diseases of animals and fowls are treated in clinic each year.

207S. Veterinary Science. (5-10). Credit, 4 term hours.

This course is designed to give the student a working knowledge of the structure, growth and diseases of domestic animals. The anatomy and physiology of animals will be reviewed, then the remainder of the term devoted to diseases and their remedies. It will be especially useful to teachers of rural schools.

Text: Principles of Veterinary Science, Hadley.

VOCATIONAL TEACHING (AGRICULTURAL EDUCATION).

305S. Vocational Education. (6-0). Credit, 3 term hours.

The purpose of this course is to give a clear understanding of the growth and importance of trade industrial and agricultural instruction, and to develop sympathy and enthusiasm for the introduction of vocational training in the public school. The history of the movement is traced; vocational guidance in the high school is considered carefully; various types of vocational schools are examined to discover their methods and content of subject-matter; and study is made of the nature and scope of vocational work carried on under the provisions of the Smith-Hughes Act.

307S. Related Subjects. (5-0). Credit, 2 term hours.

This course deals with the selection and correlation of the subject-matter related to the shop work in the woodworking trades chiefly from the standpoint of the teacher of related subjects. Mathematics, drawing, physics and safety first will be considered.

308S. Educational Psychology. (6-0). Credit, 3 term hours.

This is a beginning course in psychology with special emphasis on its application to the problems of teaching. Stress will be placed upon instinct, habit formation, memory, attention, and the psychological principles of industrial subjects in the curriculum. The principles of adolescence form an interesting chapter. The text is supplemented to a large extent by the use of lectures and references.

402S. Administration of High School Agriculture. (5-5). Credit, 3 term hours.

This course is a study of the specific problems that confront the teacher carrying on the work of the department of agriculture in the high school. Among the topics discussed are: The selection of subject-matter suited to local conditions; agriculture in the curriculum; laboratory, field and home exercises; visual instruction; supervision of home projects; laboratory and library equipment; use and management of school farm; and community or extension work. The laboratory period will be used for the preparation of teaching material, and for working out individual assignments connected with the work.

Text: Materials and Methods in High School Agriculture, Hummel.

403S. Rural Education. (6-0). Credit, 3 term hours.

The primary purpose of this course is to make a study of rural education in its broad sense, with a view of preparing teachers and extension workers for more efficient service in rural communities. Some of the topics discussed are: Changes in rural education and the rural home, together with the factors affecting such changes; the school as a community center; other agencies to be co-ordinated; community play and recreation; and the redirected rural school.

Text: Rural Life and Education, Cubberley.

418S. Visual Instuction. (6-0). Credit, 3 term hours.

The purpose of this course is to study the theory and practice of visual instruction and to acquire skill in the preparation and use of material for visual instruction. The course will include the designing and making of charts, use of the camera making negatives and lantern slides; coloring lantern slides, use of stencils, mimeoscope and projection lantern, operation and care of motion picture machine, graphic representation of data and the use of the cartoon. Instruction will also be given in preparation and display of material for fairs and exhibits.

VOCATIONAL TEACHING (INDUSTRIAL EDUCATION).

305S. Vocational Education. (6-0). Credit, 3 term hours.

For a description of this course see page 24.

308S. Educational Psychology. (6-0). Credit, 3 term hours.

For a description of this course see page 25.

310S. Educational and Vocational Guidance. (6-0). Credit, 3 term hours.

This course will include a survey of its recent development within and outside of the schools; information on the common occupations and their

requirements; analysis of personal characteristics; try out methods; value of opportunity and co-operative part-time classes; value of accumulative records; methods of keeping records; opportunities for educational and vocational guidance; vocational guidance through literature. Need for follow-up work in vocational counselling; a study of psychological, industrial, and commercial tests.

311S. Job Analysis of Industrial Art Courses. (6-0). Credit, 3 term hours.

In this course emphasis will be placed upon job analysis and its importance as the foundation for all lesson planning; an analysis of some of the more important industries in which the members of the class are interested, such as woodworking, metal working, printing, electrical construction and operation, automobile construction and repair, will be made. Important type jobs, as represented by the evening trade extension, part-time and industrial art courses, will be analyzed as to their operations, trade knowledge and teaching points; members of the class choosing these type jobs in which they are most interested. This course is a prerequisite for Vocational Teaching 417S, Lesson Planning and Methods of Teaching Industrial Education. It may be taken as a parallel course.

312S. Class Room Organization and Management. (6-0). Credit, 3 term hours.

The vital relationship of efficient organization and management to the work of the class room will be emphasized. Some of the topics discussed will be the industrial education instructor's relation to the school system and the community; most effective organization of the equipment; economic ways of securing materials and teaching aids; planning of daily programs; lesson planning; discipline and individual adjustment; grading records and reports; opportunities for educational guidance and aids; opportunities for improvement and advancement in service. This course will be planned to meet the definite needs and problems of the students in the class.

417S. Lesson Planning and Methods of Teaching Industrial Arts. (6-0). Credit, 3 term hours.

This course deals with the effective planning of a lesson in relation to its aid. It will include the planning of definite courses and the arranging of these courses in effective instructional order; members of the class choosing special industrial art courses in which they are most interested. Emphasis will be placed upon the details in planning a definite lesson, taking into consideration the varying technical development of the students in the class. Methods of teaching and their value under different teaching conditions will be discussed. The course Vocational Teaching 311S, Job Analysis of Industrial Art Courses, is a prerequisite, or it may be a parallel course.

418S. Visual Instruction. (6-0). Credit, 3 term hours.

For a description of this course see page 25.

421S. Organization and Administration of Evening Trade Classes. (Smith-Hughes aided). (6-0). Credit, 3 term hours.

This course is planned for directors and co-ordinators of the trade and industry classes. Emphasis will be placed upon the class discussion of definite problems that confront directors of these classes and the solution of these problems. The course will include a study of the Smith-Hughes requirements; analysis of industries and planning of short unit courses; organization and management of evening trade extension classes, including holding the members, securing materials as helps in class instruction, value of lesson planning, making out class-room records and reports.

422S. Organization and Administration of Part Time Classes. (Smith-Hughes aided). (6-0). Credit, 3 term hours.

This course is planned for directors and co-ordinators of trades and industry classes. The course will include kinds of part-time classes; Smith-Hughes requirements; what other states are doing; what Texas is doing and planning, including opportunity and co-operative classes; some problems and their solution.

424S. Training and Supervision of Workers in Industrial Plants. (6-0). Credit, 3 term hours.

This course is planned for experienced, industrial executives, high-grade mechanical, electrical and civil engineering students in their junior and senior year who wish to increase their future opportunities for promotion as executives in the many fields of engineering activities. The old method of placing untrained executives into positions of responsibility is passing. Keen business competition and the demand for specialized workers are bringing about this change. There is an increasing demand for educational directors, employment managers and other trained executives.

This course will include a brief summary of the development of training in industry, including corporation schools, vestibule schools, foreman conferences, job analysis, instruction on the job, and effective handling of employees.

COURSES OFFERED IN INDUSTRIAL EDUCATION IN OTHER DEPARTMENTS.

Drawing.

202S. Mechanical Drawing. (0-8). Credit, 1½ term hours.

For a description of this course see page 19.

317S. Mechanical Drawing. (0-8). Credit, 1½ term hours.

For a description of this course see page 19.

318S. Machine Drawing. (0-8). Credit, 1½ term hours.

For a description of this course see page 19.

Mechanical Engineering.

311S. Carpentry and Cabinet Making. (0-8). Credit, 1½ term hours.

This course consists of the following two lines of practice:

(a) The carpentry of wood building construction, in which will be included making out bills of lumber and hardware for building, laying out rafters, stairs, etc., methods of framing, inside finish, etc.

(b) Cabinet making, including wood seasoning, accurate construction in hardwood, wood finishing, making of mill bills, also a limited amount of designing of simple cabinets.

Laboratory fee $2.00.

Prerequisite: Mechanical Engineering 103S.

Agricultural Engineering.

420S. Automobile Mechanics. (5-10). Credit, 4 term hours.

This course will illustrate the use of the automobile for instruction in high schools and industrial schools. It will include a series of mechanical and electrical problems dealing with the construction, operation, adjustment and care of the automobile. It will include assembling and dissembling parts of the mechanism; locating and correcting troubles in connection with a study of the essential principles of gas engines, carburetors, ignition system, starting and lighting systems, cooling systems, clutches, gears, the differential, care of tires, lubrication and fuels. This course will include the effective and economic planning of the shop equipment, illustrative material, text and reference books; outlining of a course suitable for high schools and industrial schools.

INDUSTRIAL EXECUTIVES AND WORKERS' SHORT COURSE.

This course is planned to meet the needs of industrial executives and workers, who having experience in the various building trades, manufacturing pursuits, or some of the many fields of engineering activities, wish to increase their efficiency and their opportunities for promotion.

The following short courses are offered:

Foreman Training of Conference Leaders.

This course is planned for the purpose of giving prospective foreman conference leaders from oil refineries, textile mills, electric and steam railway shops, power and light plants, packing houses, cement works, and large manufacturing plants, a conception of the underlying principles involved in foreman conferences. It will require full time during the two weeks of the course.

The course will include an analysis of foremanship courses, as to what they will do and what conditions will warrant their selection; an analysis of specific methods of carrying on foreman conferences, showing the value of the developmental method over the informational method of foreman training; job analysis and its importance. Extensive experience will be given in the analyzing of the foreman's responsibilities as related to men, materials, and equipment; also observation and practice work in

holding foreman conferences. Where desired, arrangements will be made for the purpose of aiding members of the class to organize and carry on foreman conferences in their industrial plants.

Training and Supervising Workers in Industrial Plants.

This course is planned for experienced executives in industry and for high-grade mechanical, electrical and civil engineering students in their junior and senior year who wish to increase their future opportunities for promotion as executives in the many fields of engineering activities. The old method of placing untrained executives into positions of responsibility is pasing. Keen business competition and the demand for specialized workers are bringing about this change. There is an increasing demand for educational directors, employment managers and other trained executives.

This course will include a brief summary of the development of training in industry, including corporation schools, vestibule schools, foreman conferences, job analysis, instruction on the job, and effective handling of employees.

Short unit courses on trades and industrial pursuits will be added if there is sufficient demand.

GRADUATE COURSES.

Administration.—The regulations concerning graduate studies and all matters relating thereto are administered by the Committee on Graduate Studies.

Advanced Degrees.—The College offers graduate courses leading to advanced degrees as follows: Master of Science (M. S.), Chemical Engineer (Ch. E.), Civil Engineer (C. E.), Electrical Engineer (E. E.), Mechanical Engineer (M. E.).

Admission.—In order to be admitted to a course of study leading to an advanced degree, the candidate must satisfy the following requirements:

1. He must be a graduate of this College or of some other institution approved by the Faculty.
2. His undergraduate work must be of such high order as to satisfy the committee that he is qualified by native ability and by training to pursue graduate studies with profit and with credit. In case his undergraduate work does not fully meet this requirement, the committee may require the completion of additional undergraduate work with a grade of at least B.

Application should be made *in advance* to the chairman of the committee, and in case the candidate comes from another institution, his application must be accompanied by a complete transcript of his undergraduate record, properly certified.

Registration.—Graduate students must register at the beginning of each term at the office of the Registrar.

Studies.—(a) For the degree of Master of Science in Agriculture or in Agricultural Education the candidate must choose from the graduate

courses listed under the several departments, a major subject and two minor subjects; his choice to be subject to the approval of the heads of the departments concerned and of the committee. For each hour of theory the student will be expected to devote to preparation six hours for the major subject and three hours for each minor subject. In the summer session, the completion of one term's work in a major subject requires twelve weeks. One term's work in a minor subject may be completed in twelve weeks, or, under certain conditions as to extra time, in six weeks. In the latter case, four hours preparation will be required for each hour of theory.

(b) For the advanced degrees in engineering and in architecture the courses of study are shown under "Curricula" in the catalogue for the regular session.

Residence.—Advanced degrees will not be conferred except after a residence of at least one year at the College. For candidates engaged in teaching or other regular employment, the period of residence will be increased to such extent as the committee may determine. The residence requirement may be satisfied by residence during three summer sessions of twelve weeks each.

The number of graduate courses offered in the summer session is limited, and application should be made *at least one month in advance.*

Other Regulations.—Other regulations, which need not be repeated here, are to be found in the catalogue of the regular session.

Courses Offered in the Summer Session.—The following graduate courses are described under the several departments in the catalogue of the regular session. The list is provisional only, and it is not to be assumed that all the courses will be offered in any one summer session. As stated above, application for any of these courses must be made at least one month in advance.

Provisional List of Graduate Courses.

Agricultural Engineering 501S, Major; 501aS, Minor. Advanced Drainage and Irrigation.
Agronomy 501S, Major; 501aS, Minor. Advanced Farm Crops.
Agronomy 505S, Major; 505aS, Minor. Advanced Soils.
Animal Husbandry 501S, Major; 501aS, Minor. Advanced Animal Nutrition.
Biology 501S, Major; 501aS, Minor. Vegetable Morphology.
Biology 503S, Major; 503aS, Minor. Advanced Vertebrate Zoology.
Biology 505S, Major; 505aS, Minor. Advanced Bacteriology.
Chemistry 501S, Major; 501aS, Minor. Advanced Agricultural Chemistry.
Dairy Husbandry 501S, Major; 501aS, Minor. Advanced Dairy Husbandry.
Entomology 501S, Major; 501aS, Minor. Research Entomology.
Entomology 505S, Major; 505aS, Minor. Advanced Apiculture.
Entomology 507S, Major; 507aS, Minor. Economic Entomology.
Horticulture 501S, Major; 501aS, Minor. Advanced Fruit Growing.

Horticulture 503S, Major; 503aS, Minor. Advanced Vegetable Gardening.

Horticulture 505S, Major; 505aS, Minor. Advanced Landscape Art.

Rural Social Science 501S, 502S, Major; 501aS, 502aS, Minor. Advanced Rural Social Science.

Vocational Teaching 501S, 502S, Major; 501aS, 502aS, Minor. Agricultural Instruction.

Vocational Teaching 503S, 504S, Major; 503aS, 504aS, Minor. Agricultural Extension and Demonstration.

Vocational Teaching 505S, 506S, Major; 505aS, 506aS, Minor. Organization and Management of Teacher Training Department.

COURSES CARRYING CREDIT TOWARD A TWO-YEAR CERTIFICATE IN AGRICULTURE.

(First Six Weeks' Term.)

AGRICULTURAL ENGINEERING.

203S. Gas Engines. (5-5). Credit, 3 term hours.

For a description of this course see page 14.

AGRONOMY.

28S. Soils. (6-5). Credit, 4 term hours.

A study of the origin, structure, texture and crop adaptations of agricultural soils. Soil fertility and its maintenance; manures, fertilizers, cover crops, fallowing, fall and spring plowing, crop rotations, diversification and the renovation of worn-out soils will receive attention in their proper order. This course is designed to meet the more practical needs of the two-year student.

Recitations and lectures.

Text: Productive Soils, Weir.

Laboratory and field studies on the water-holding capacity of soils, capillarity, the influence of organic matter on the physical properties, lime and its effects, etc.

Laboratory fee $0.50.

ANIMAL HUSBANDRY.

202S. Judging Breed Types of Horses, Cattle, Sheep, and Swine. (5-5). Credit, 3 term hours.

For a description of this course see page 15.

55S. Live Stock Feeding. (5-5). Credit, 3 term hours.

This course embraces a study of the feeding of all classes of farm animals, horses, cattle, sheep and swine. The subject of animal nutrition, the composition of available feeding stuffs and the calculating of rations, are treated fully.

Text: Feeds and Feeding, Abridged, Henry and Morrison.

The practice consists largely of calculating rations for different classes

of farm animals, special attention being given to the study of Texas-grown feeding stuffs.

DAIRY HUSBANDRY.

102S. Dairying. (6-5). Credit, 4 term hours.

For a description o fthis course see page 17.

ENTOMOLOGY.

201S. General Entomology. (5-5). Credit, 3 term hours.

For a description of this course see page 19.

HORTICULTURE.

21S. Plant Culture and Propagation. (5-5). Credit, 3 term hours.

A modification of course 201. The first part is devoted to plant culture, and is followed by a thorough discussion of the propagation of plants, including fruits, ornamentals, and vegetables.

Lectures and recitations.

Practice work in the propagation of seedlings and the different forms of budding and grafting, layering, etc.

Laboratory fee $0.75.

Text: Principles of Plant Culture, Goff.

202S. Vegetable Gardening. (6-5). Credit, 4 term hours.

For a description of this course see page 21.

SCHEDULE OF COURSES IN THE COLLEGE DIVISION.

(First Six Weeks' Term.)

Theory.

7:30—Agricultural Engineering 314S, Tractors, daily, except Saturday.
Agronomy 28S, Soils, daily.
Agronomy 301S, Soils, daily.
Animal Husbandry 103S, Beef Cattle and Sheep, daily, except Saturday.
Animal Husbandry 202S, Breed Types of Horses, Cattle, Sheep and Swine, daily, except Saturday.
English 104S, Rhetoric and Composition, daily.
Mathematics 101S, Algebra, daily.
Mathematics 102S, Algebra, daily.
Physics 203S, General, daily.
Rural Social Science 401S, Rural Economics, daily, except Saturday.
Vocational Teaching 305S, Vocational Education, daily.

8:30—Agricultural Engineering 203S, Gas Engines, daily, except Saturday.
Modern Language 311S, French, daily.

Animal Husbandry 104S, Live Stock Production, Hogs and Horses, daily, except Saturday.
Biology 101S, General Botany, daily, except Saturday.
Economics 306S, Fundamental Principles, daily.
Entomology 304S, Apiculture, daily, except Saturday.
Farm Management 402S, Farm Management, daily.
Mathematics 103S, Plane Trigonometry, daily.
Mathematics 104S, Analytics, daily.

9:30—Chemistry 206S, Organic Chemistry, daily.
Dairy Husbandry 102S, Dairying, daily.
Horticulture 202S, Vegetable Gardening, daily.
Mathematics 203S, Calculus, daily.
Mathematics 204S, Calculus, daily.
Modern Language 312S, French, daily.
Rural Social Science 402S, Rural Sociology, daily, except Saturday.
Vocational Teaching 308S, Educational Psychology, daily.

10:30—Economics 202S, Business Law, daily, except Saturday.
Animal Husbandry 55S, Live Stock Feeding, daily, except Saturday.
English 103S, Rhetoric and Composition, daily.
Entomology 201S, General Entomology, daily, except Saturday.
Horticulture 201S, Plant Propagation and Orcharding, daily.
Modern Language 315S, Spanish, daily.
Physics 204S, General, daily.

11:30—Animal Husbandry 409S, Animal Nutrition and Live Stock Feeding, daily.
Chemistry 101S, General Inorganic Chemistry, daily.
Economics 306S, Fundamental Principles, F., S.
Horticulture 21S, Plant Culture and Propagation, daily, except Saturday.
Modern Language 316S, Spanish, daily.
Vocational Teaching 402S, Administration of High School Agriculture, daily.

1:30—Agricultural Engineering 315S, Farm Shop, M., W., F.
Animal Husbandry 201S, Farm Poultry, daily, except Saturday.

Practice.

8:30—Agronomy 301S, Soils, Th., S.
Animal Husbandry 103S, Beef Cattle and Sheep, daily, except Saturday.

9:30—Agronomy 301S, Soils, Th., S.
Animal Husbandry 103S, Beef Cattle and Sheep, daily, except Saturday.
Animal Husbandry 202S, Breed Types of Horses, Cattle, Sheep and Swine, S.
Biology 101S, General Botany, daily, except Saturday.
Textile Engineering 101S, Cotton Classing, S.

10:30—Agronomy 301S, Soils, S.
Animal Husbandry 202S, Breed Types of Horses, Cattle, Sheep and Swine, F., S.

Biology 101S, General Botany, daily, except Saturday.
Farm Management 402S, Farm Management, daily, except Saturday.
Textile Engineering 101S, Cotton Classing, F., S.

11:30—Animal Husbandry 202S, Breed Types of Horses, Cattle, Sheep and Swine, F., S.
Farm Management 402S, Farm Management, daily, except Saturday.
Textile Engineering 101S, Cotton Classing, F., S.

1:30—Agricultural Engineering 203S, Gas Engines, M., W.
Agronomy 28S, Soils, M., W.
Animal Husbandry 55S, Live Stock Feeding, T., Th.
Animal Husbandry 104S, Live Stock Production, Hogs and Horses, daily, except Saturday.
Chemistry 206S, Organic Chemistry, M., W.
Entomology 201S, General Entomology, T., Th.

2:30—Agricultural Engineering 203S, Gas Engines, M., W.
Agricultural Engineering 315S, Farm Shop, daily, except Saturday.
Agronomy 28S, Soils, M., W.
Animal Husbandry 55S, Live Stock Feeding, T., Th.
Animal Husbandry 104S, Live Stock Production, Hogs and Horses, daily, except Saturday.
Animal Husbandry 201S, Farm Poultry, T.
Animal Husbandry 409S, Animal Nutrition and Live Stock Feeding, W., F.
Chemistry 101S, General Inorganic Chemistry, T., Th.
Chemistry 206S, Organic Chemistry, M., W.
Dairy Husbandry 102S, Dairying, T., Th.
Entomology 304S, Apiculture, W.
Entomology 201S, General Entomology, T., Th.
Horticulture 21S, Plant Culture and Propagation, F.
Horticulture 201S, Plant Propagation and Orcharding, T., Th.
Horticulture 202S, Vegetable Gardening, M., W.
Vocational Teaching 402S, Administration of High School Agriculture, daily, except Saturday.

3:30—Agricultural Engineering 314S, Tractors, daily, except Saturday.
Agricultural Engineering 315S, Farm Shop, daily, except Saturday.
Agronomy 28S, Soils, M.
Animal Husbandry 55S, Live Stock Feeding, T.
Animal Husbandry 201S, Farm Poultry, T., Th.
Animal Husbandry 409S, Animal Nutrition and Live Stock Feeding, W., F.
Chemistry 101S, General Inorganic Chemistry, M., T., W., Th.
Chemistry 206S, Organic Chemistry, M.
Dairy Husbandry 102S, Dairying, T., Th.
Entomology 201S, General Entomology, T.
Entomology 304S, Apiculture, M., W.
Horticulture 21S, Plant Culture and Propagation, W., F.
Horticulture 201S, Plant Propagation and Orcharding, T., Th.

Horticulture 202S, Vegetable Gardening, M., W.
Physics 203S, General, T., W., Th., F.
Physics 204S, General, T., W., Th., F.

4:30—Agricultural Engineering 314S, Tractors, daily, except Saturday.
Agricultural Engineering 315S, Farm Shop, daily, except Saturday.
Animal Husbandry 201S, Farm Poultry, T., Th.
Animal Husbandry 409S, Animal Nutrition and Live Stock Feeding, F.
Chemistry 101S, General Inorganic Chemistry, M., W.
Dairy Husbandry 102S, Dairying, T.
Entomology 304S, Apiculture, M., W.
Horticulture 21S, Plant Culture and Propagation, W., F.
Horticulture 201S, Plant Propagation and Orcharding, T.
Horticulture 202S, Vegetable Gardening, W.
Physics 203S, General, T., W., Th., F.
Physics 204S, General, T., W., Th., F.

The time for each course in the following list will be arranged when the course is asked for:

Agricultural Engineering 420S, Auto-Mechanics.
Drawing 101S, Mechanical Drawing.
Drawing 102S, Mechanical Drawing.
Drawing 103S, Descriptive Geometry.
Drawing 104S, Descriptive Geometry.
Drawing 105S, Free-hand Drawing.
Drawing 106S, Free-hand Drawing.
Drawing 201S, Mechanical Drawing.
Drawing 202S, Mechanical Drawing.
Drawing 317S, Mechanical Drawing.
Drawing 318S, Machine Drawing.
Mechanical Engineering 311S, Carpentry and Cabinetmaking.
Rural Social Science 401S, Rural Economics, practice only.
Rural Social Science 402S, Rural Sociology, practice only.
Veterinary Medicine and Surgery 371S, Clinics.
Vocational Teaching 307S, Related Subjects.
Vocational Teaching 403S, Rural Education.
Vocational Teaching 418S, Visual Instruction.
Vocational Teaching 310S, Educational and Vocational Guidance.
Vocational Teaching 311S, Analysis of Industrial Art Courses.
Vocational Teaching 312S, Class Room Organization and Management.
Vocational Teaching 417S, Lesson Planning and Methods of Teaching Industrial Arts.
Vocational Teaching 421S, Organization and Administration of Evening Trade Classes.
Vocational Teaching 422S, Organization and Administration of Part-time Classes.
Vocational Teaching 424S, Training and Supervision of Workers in Industrial Plants.

SECOND SIX WEEKS' TERM.

AGRONOMY.

302S. Farm Crops. (6-5). Credit, 5 term hours.

In this course all the leading field crops are studied with regard to structure; composition, races and varieties, breeding or improvement, soils, rotations, fertilizers, together with tillage operations, harvesting and marketing.

Text: Field Crops for the Cotton Belt, Morgan; Forage Plants and Their Culture, Piper.

Students at Work in Soils Laboratory.

In the laboratory, field, and greenhouse, the student makes a careful study of the leading characteristics of the different crops; seeds are studied as regards purity, and other points that determine value.

Prerequisite: Agronomy 301; Biology 101S, 102S.

BIOLOGY.

102S. General Botany. (5-10). Credit, 4 term hours.

The aim of this course is to provide the student who looks forward to entering some field of work in agriculture with an accurate and thorough knowledge of living plants. The point kept steadily in view is, therefore, physiologic rather than anatomic. The first term begins with an outline of the external and internal form and structure necessary to the more extended study of life processes of plants. Types of various subdivisions of the plant kingdom are used to illustrate the great fundamental prin-

ciples of development and adaptation, and to serve as a foundation for later work in classification.

The plan of the laboratory work is based on the inductive principle; the student is trained to acquire facts of development, structure and function by direct observation. Each student is required to keep a notebook in which he records by drawings and notes the results of his work.

Text: Nature and Development of Plants, Curtis.

CHEMISTRY.

102S. General Inorganic Chemistry. (6-8). Credit, 4½ term hours.

This is a continuation of Chemistry 101S, page 16.

309S. Agricultural Chemistry. (6-10). Credit, 5 term hours.

This is a study of the fundamental chemical principles of agriculture, and in addition to giving the student a grasp of the application of chemistry it helps to understand the chemical terms used in Experiment Station literature. The chemistry of plant substances, soils, irrigation water, fertilizers, insecticides, and fungicides is studied.

The laboratory work serves to familiarize the student with the composition and behavior in the laboratory of many materials important in agriculture. It consists of the chemical analysis of feeds, soils, fertilizers, insecticides, and fungicides.

Text: Chemistry of Agriculture, Stoddard. Laboratory Manual of Agricultural Chemistry, Hedges and Bryant.

Prerequisite: Chemistry 206S.

Laboratory fee, $3.00.

ENGLISH.

303S. Argumentation. (5-0). Credit, 2 term hours.

This course involves a study of the essentials of argumentation, and practice in drawing briefs, with special emphasis being placed on reading and oral discussions.

304S. Argumentation. (5-0). Credit, 2 term hours.

A continuation of English 303S.

VETERINARY MEDICINE AND SURGERY.

372S. Clinics. (0-18). Credit, 3½ term hours.

For a description of this course see Veterinary Medicine and Science 371S, page 24.

SCHEDULE OF COURSES FOR SECOND SIX WEEKS' TERM.

Theory.

7:30—Agronomy 302S, Farm Crops, daily.
8:30—Chemistry 102S, General Inorganic Chemistry, daily.
Chemistry 309S, Agricultural Chemistry, daily.

9:30—Biology 102S, General Botany, daily, except Saturday.
10:30—English 303S, Argumentation, daily, except Saturday.
11:30—English 304S, Argumentation, daily, except Saturday.

Practice.

9:30—Agronomy 302S, Farm Crops, S.
10:30—Agronomy 302S, Farm Crops, S.
11:30—Agronomy 302S, Farm Crops, S.
1:30—Biology 102S, General Botany, daily, except Saturday.
2:30—Biology 102S, General Botany, daily, except Saturday.
3:30—Agronomy 302S, Farm Crops, F.
Chemistry 102S, General Inorganic Chemistry, M., T., W., Th.
Chemistry 309S, Agricultural Chemistry, daily, except Saturday.
4:30—Agronomy 302S, Farm Crops, F.
Chemistry 102S, General Inorganic Chemistry, M., T., W., Th.
Chemistry 309S, Agricultural Chemistry, daily, except Saturday.

THE SCHOOL OF COTTON CLASSING.

(June 12 to July 22)

The object of the School of Cotton Classing is to prepare young men for cotton buying and the managing of cotton warehouses, and to offer to farmers the opportunity of increasing their knowledge of the leading farm product of Texas.

A study is made of the elements which determine the commercial grades of cotton; the influence which affects the price of cotton; the system of financing the crop from field to factory, and the relation of exchanges to the business in general. Each class is furnished with new samples for practice and the work is patterned after that of a cotton office. The samples used in the summer school are obtained from the cotton states west of the Mississippi river and an effort is made to familiarize the student with the different characteristics of cotton grown in the southwest.

Special attention will be paid to the staple of cotton, and experts in this branch will give instruction in this subject. Many samples of various lengths of staple will be provided for students taking up this line of work.

The government standards for classing cotton, which have been adopted by all the exchanges, will be used.

The announcement giving complete details relative to the work of this division will be ready for distribution March 1, 1922, and can be secured by addressing Professor J. B. Bagley, College Station, Texas.

THE SCHOOL OF GRAIN GRADING.

(June 12 to July 22)

The School of Grain Grading has been established for the purpose of giving detailed instruction in the matter of grading grains according to the Federal standards established by the recent Grain Standards Act. This act was approved August 11, 1916, and its purpose is to provide for the establishment of a single set of standards of quality and condition for the various grains, and to provide for their uniform application to the shipments of grain by grade in interstate and foreign commerce. The act specifically prohibits the use of any other grades whatsoever for any grain which comes under its requirements. To enforce the provisions of this act and to supervise the inspection of grain, in order that the Federal grades may be uniformly and properly applied, a Federal Grain Supervision service has been created in the Bureau of Markets of the United States Department of Agriculture. In carrying out the provisions of this service the actual inspection and grading of grain is done by inspectors licensed for that purpose. In Texas these inspectors are licensed by the State Commissioner of Markets and Warehouses. In order to secure such a license it is necessary that the applicant first pass a satisfactory examination before a State board of examiners for grain graders, which board is appointed by the Commissioner of Markets and Warehouses of the State of Texas. This examination is held in accordance with the Federal Grain Standards Act and the like standards of the Markets and Warehouse Department of the State of Texas. It is the plan of the Department of Markets and Warehouses to have a large number of people in the grain growing belt of this State prepare themselves for the classing and grading of grain. One of the important objects of the Grain Grading School is to prepare persons who desire to enter this field of work for the examination mentioned above.

Again, the use of the Federal standards in the grain markets has stimulated a desire among grain farmers and grain dealers to gain a knowledge of the methods of applying the standards. This knowledge will enable the farmer to know, when his grain is being graded at the country mill or elevator, that it is being done properly. These facts, together with the generally increased interest in the last few years in marketing of farm products, has greatly increased the demands made on the agricultural colleges for information on the market grading of grains.

The work of the Grain Grading School will cover, in detail, the grading of wheat, corn (both in the ear and shelled), oats, rice, and the grain sorghums (both in the head and the threshed grain). No Federal standard has been established for the grain sorghums. However, the State Commissioner of Markets and Warehouses has recently established standards for the grading of grain sorghums, and the work of this school, relative to grain sorghums, will be given in accordance with the standards fixed by the Commissioner of Markets and Warehouses.

The services of a capable and experienced grain grader will be secured

for giving the work of this school. The instruction will consist of both lectures and laboratory exercises.

The course of lectures will be confined, in the main, to the following topics:

I. History leading up to the passing of the Grain Standards Act.

II. United States Grain Standards Act
- A. Date passed.
- B. Value in foreign trade.
- C. Value in interstate trade.
- D. Indirect effect upon intrastate and local trade.
- E. How the farmer is affected.
- F. Classifications and grades provided by the Federal standards.
  1. For wheat.
     - a. Classes, subclasses, and grades. (As shown by charts put out by the Bureau of Markets).
     - b. Wheat districts (shown by map).
     - c. Descriptions of the six market classes of wheat (both threshed and head samples of each class exhibited).

       District where grown.

       Texture.

       Color.

       Milling quality.
  2. For corn.
     - a. Classes and grades (as shown by charts).
  3. For oats.
     - a. Classes and grades (as shown by charts).
- G. The organization to carry out the provisions of the act.
  1. The licensed inspector.
     - a. Qualifications of the inspector.
     - b. Duties.
     - c. How he obtains his license and his relation to the Federal government.
     - d. Rules and regulations governing the inspector.
  2. The district supervisor.
     - a. Division of United States into supervision districts (shown by map).
     - b. Qualifications of the supervisor.
     - c. Duties.
     - d. How to use the supervisor's office.

       How to take an appeal.

       How to take a dispute.

       Definition of terms used in connection with appeals and disputes.
  3. The board of review.
     - a. Location.
     - b. Duties.

4. Secretary of Agriculture.
   a. Relation to the inspection and grading work.
5. Relations between inspectors, supervisors, board of review, and Secretary of Agriculture. (Explained by use of diagram on blackboard.)

III. Bases upon which the grain grades are established.

In this part of the course the students are assigned references to report on and discuss before class. The references used are listed below in about the order in which they are to be taken up by the class:

1. U. S. Dept. Agr. Bul. 328, Milling and baking tests of wheat containing admixtures of rye, corn, cockle, kinghead, and vetch.
2. U. S. Dept. Agr., Plant Indus. Bul. 100, Garlicky wheat.
3. Ind. Agr. Expt. Sta. Bul. 176, Wild garlic and its eradication.
4. U. S. Dept. Agr. Farmers' Bul. 610, Wild onion: Methods of eradication.
5. U. S. Dept. Agr. Bul. 455, The drying for milling purposes of damp and garlicky wheat.
6. U. S. Dept. Agr. Farmers' Bul. 919, Methods of handling dockage.
7. U. S. Dept. Agr. Bul. 557, A comparison of several classes of American wheats and consideration of some factors influencing quality.
8. Bureau of Markets Service and Regulatory Announcements 54. How hard red winter wheat is grading under Federal standards.
9. U. S. Dept. Agr. Bul. 788, Moisture in wheat and mill products.
10. U. S. Dept. Agr. Bul. 751, Experiments in the digestibility of wheat bran in a diet without wheat flour.
11. Utah Agr. Expt. Sta. Bul. 103, Milling qualities of wheat.
12. Canadian Dept. Agr. Bul. 57, Quality of wheat.
13. U. S. Dept. Agr. Bul. 48, The shrinkage of corn while in cars in transit.
14. U. S. Dept. Agr. Bul. 725, A preliminary study of the bleaching of oats with sulphur dioxid.
15. U. S. Dept. Agr. Bul. Plant Indus. Cir. 74, The sulphur bleaching of commercial oats and barley.

IV. Laboratory practice.

A large number of samples of the different grains are obtained from various sources, such as the local experiment station, feed stores, and farmers of the State, and assigned to the students. The first laboratory period is used in demonstrating the use of the grain probe in obtaining samples and the apparatus used in grading, and in discussing various phases of the different operations. In the following laboratory periods the students are furnished with direction sheets to be followed in grading the assigned samples, and with the use of the small handbook, "Official Grain Standards," and type samples, the students are able to go ahead with a reasonable amount of help from the instructor.

The following directions for grading wheat will give an idea of the general procedure followed in grading all of the different sorts of grain.

DIRECTIONS FOR GRADING WHEAT.

1. Give your sample a laboratory number.
2. Make moisture test using sample contained in air-tight can. For all other determinations use that portion of the sample contained in the cloth bag.
3. Determine odor, onion, garlic and live weevils or other insects injurious to stored grain.
4. Divide sample down to about 1000 grams.
5. Determine dockage using the 1000 gram sample.
6. Determine test weight per bushel using the dockage free wheat obtained in 5.
7. Divide the sample down to three portions—A, B, and C—containing 25 to 65 grams each.
8. Using portion A, determine the class and subclass into which the sample should be placed by analyzing for color and texture.
9. Using portion B, determine wheats of other classes.
10. Using portion C, determine damaged kernels (total and heat damaged) and foreign material (total and other than cereal grains).

REPORT OF WHEAT GRADING TEST.

Sample No.			
Per cent moisture			
Odor			
Per cent dockage			
Weight per bushel			
Class			
Subclass			
Per cent wheats of other classes			
Percent damaged kernels—Total			
Percent damaged kernels—Heat damaged			
Per cent foreign material—Total			
Per cent foreign material—Other than cereals			
Grade			
Remarks			

A somewhat similar study is made of corn (both in the ear and shelled), oats, rice, and the grain corghums (both in the head and the threshed grain).

EIGHT WEEKS' COURSE IN AUTOMOBILES AND TRACTORS.

General Statement.

The Eight Weeks' Automobile and Tractor Course offered by the Agricultural Engineering Department of the Agricultural and Mechanical College of Texas has been established for the following well-defined purposes:

1. To provide the power farmer an opportunity to increase his knowledge of the gas engine, tractor and automobile by systematic study, thus enabling him to obtain maximum efficiency at minimum expense.

2. To give the boy or man wishing to enter the automotive industry as a manager, salesman, demonstrator or mechanic a short course in the fundamental mechanics of that industry.

3. To afford the general public interested in automotive mechanics an opportunity to get a short course in this subject.

From all these sources the demand is the same—better mechanics. More finely constructed machines of all kinds are being built to obtain the maximum efficiency. Therefore, it is necessary for the operators to be more skillful in their work if the machines are to function properly. The annual loss due to inefficient operation is very great and can only be eliminated by properly trained men. To meet this demand for information the Eight Weeks' Tractor and Automobile Course was established four years ago during which time hundreds of men have been successfully trained in the work and have gone out to take up positions as mechanics, operators of trucks, tractors and gas engines, salesmen and managers.

Outline of Regular Course.

The Automobile and Tractor Short Course is divided into eight parts of one week each and so arranged that each succeeding week carries the student further along in the study of auto-mechanics. The work of each week has been very carefully outlined and such work that is not essential has been eliminated, leaving only material of vital importance in the course. Following is given a brief outline of what is given in each week's work.

Metal Working Department.

In the metal working department the making of various parts of automobiles and tractors out of iron, steel, brass, aluminum, etc., is taken up as well as the repairing of these same pieces. The making of such special tools as a mechanic may need is also considered and the student gets first-hand information by making cold chisels, punches, off-set screw drivers, etc. The tempering of these tools is an important factor and the student is required to see that the tools he makes are properly tempered.

Soldering of various metals is done by the student in his laboratory work. Welding not only with the open fire is given but also with oxygen-acetylene torch.

Chassis Department.

The work in the chassis department consists in getting familiar with the different parts of the chassis of automobiles and tractors, such as the wheels, springs, differential, frame, transmission clutch, etc. The student studies the various types of these different parts and gets not only familiar with what they look like but also their repair and adjustment.

Gas Engine Department.

The work in the gas engine department is for the purpose of getting the student familiar with the single cylinder gas engine such as is found on the farm. No course in auto-mechanics would be complete without having had work in this vital department. While the theory underlying the operation of these engines is the same as any other gas engine, it is essential that the student become familiar with the practical application of these theories. The work of this department takes up in detail the various methods of cooling, governing, igniting and mixing the gas as found on farm gas engines.

Motor Department.

In the motor department the student is taught the care and operation of multiple cylinder engines. He not only is taught how to properly operate the multiple cylinder, but also to properly disassemble and reassemble four, six, and eight cylinder engines under expert supervision. In disassembling these motors the student becomes familiar with the different parts of the motor and how they are put together. He also learns how to properly grind a valve; pour, scrape and fit a bearing; fit a piston with piston rings; and time valves.

Electrical Department.

In the electrical department the student studies ignition, which is the principles of electricity as applied to the ignition of the internal combustion engine. The student spends two weeks in this department, the first week of which is taken up with a study of elementary electricity and its application to coils, magnetos, distributors, spark plugs; all of which are found on ignition systems of autos and trucks. Special attention is given to the magneto; its operation, care, and repair. During the second week in this department the student takes up work along the same line as that given in the previous week with special emphasis being placed on the details of ignition timing. Starting and lighting systems connected to the ignition system of various standard makes are arranged on special stands which allow the student to see just the electrical part of the car.

Tractor Department.

The work of the tractor department takes up the difference in design, methods of operation and construction, together with the care and repair of the various makes and sizes of tractors on the market today. The student gets an opportunity to operate the various tractors found in the laboratory.

Trouble Shooting Department.

The work in the trouble shooting department allows the student to use all the information and skill that he has gained in the previous weeks by solving motor troubles. Here the instructor puts the motor in trouble by causing to occur some irregularity which is liable to happen under ordinary conditions. It is the student's problem to discover the cause of the trouble and to remedy it. He thus becomes familiar with the troubles to be found in motors.

Advanced Courses.

In addition to the regular eight weeks' course, three advanced courses are offered to those who successfully complete the eight weeks' course. These advanced courses may be of four or eight weeks' duration, depending upon the student's wishes. The mission of these courses is to carry the student further along some special line as it is realized that in the regular eight weeks' course not sufficient time is available for those wishing to become specialists in any one subject.

When Courses Start.

Courses start as follows: February 1; March 8, 15, 29; May 3, 10; June 28.

Who May Enter Course.

In order to enter this course the student must be eighteen or more years old, and must present a certificate from some reliable person showing that he is in good standing in his community.

For the courses starting May 17 and 24 and June 28, students sixteen years old will be allowed to attend.

Cost of Course.

The following fees are charged all who enter the course:

Incidental fee	$ 10.00
Medical fee	2.50
Board and room for term of eight weeks	64.00
Laboratory fee	60.00
	$136.50

The incidental fee is for sundry expenses, such as printed forms, examination books, etc.

The medical fee pays for the services of the College Surgeon and Hospital Staff who are at the service of the students.

The maintenance fee includes board, fuel, laundry, light, room rent, bedstead, mattress, table and chair.

The above covers all the expenses a student will be called upon to bear. He is required to make a deposit of $10.00 for his books and tools. The money is returned to him at the end of the course, providing he returns the books and tools.

Those Who Complete the Course.

At the completion of a course, if the student has done satisfactory work and passed he is given a certificate showing that he has done so. These certificates are given only to those who do satisfactory work and complete the course. Should a student fail to pass the course, he may take it again, providing the instructors think he will not be wasting his time, but he must pay the same fees for the second course as he did for the first. Every effort is made to locate positions for those who get certificates and have no employment.

THE FARM BOYS' DIVISION.

(July 3 to July 29)

The object of this course is to offer to boys not under fourteen or over eighteen years of age, elementary, but practical, courses in subjects relating to farm life.

For several years there has been growing, throughout the State, a feeling that our farm boys should be given better opportunities for securing special training in agricultural and farm-life subjects. A great majority of these boys have not had access to schools of sufficient grade to enable them to enter college courses, and it is to meet their needs for practical instruction in agriculture that the Farm Boys' Division has been added to the work of the Summer Session.

Courses will be given covering the important divisions of agriculture as follows:

Agricultural Engineering. (1-4).

This work will consist of practical demonstrations relative to the use of farm tractors, gasoline engines, farm machinery, the construction of farm terraces, belt lacing, and rope tying.

Agronomy. (1-4).

This course includes practical demonstrations and lectures covering the important methods of tillage, use of fertilizers and manures, crop rotation, and seed selection.

Animal Husbandry. (1-8).

A general course briefly covering the various phases of beef cattle, horses, hogs, and sheep production, including judging, feeding, and management.

Dairy Husbandry. (1-4).

This course will be devoted to the judging, feeding, breeding, care and management of dairy cattle, and the care and handling of dairy products.

Horticulture. (1-4).

The theory periods of this course will be devoted to discussions of the fundamental principles underlying:

1. The propagation of plants by seeds, cuttings, budding, and grafting.

2. Orcharding, including laying out of orchard lands and the planting and care of the orchard.

3. Vegetable gardening, including preparation of the land, construction of cold frames and hotbeds, fertilizers, and preparing vegetables for market.

The practice will be devoted to practical work in making cuttings, budding, and grafting; in laying out orchards, pruning, and spraying; in mixing and applying fertilizers.

Poultry Husbandry. (1-6).

The work in poultry husbandry will include a study of the important phases of the industry as it applies to conditions on the farms of the State. Considerable time will be devoted to breeding, feeding, housing, sanitation, incubation, brooding, judging, and marketing.

The practice work will consist of the study of breeds and types, candling and grading eggs, killing, dressing and marketing poultry.

These courses will be given in accordance with the following schedule:

7:30—Horticulture, T., Th., S.
8:30—Horticulture, Th., S.
Poultry, M., T., W., F.
9:30—Poultry, T., W., F.
10:30—Agricultural Engineering, M., W., F.
Dairy Husbandry, T., Th., S.
11:30—Agricultural Engineering, W., F.
1:30—Agronomy, T., Th., F.
2:30—Agronomy, T., Th.
3:30—Animal Husbandry, M., T., W., Th., F.
4:30—Animal Husbandry, T., W., Th., F.

THE COURSE FOR COUNTY AGENTS.

(July 24 to September 2)

The work of this division is planned to meet the needs of persons who desire to better prepare themselves for county agent work. The duties of an efficient county agent require that he has a knowledge of the elementary principles underlying agricultural practice, as well as successful farm experience. In the future no person will be appointed to a position as county agent in Texas who does not have, in addition to successful and satisfactory farm experience, a general knowledge of the principles underlying modern agricultural practice, and who cannot satisfactorily pass an examination as provided for in the following "rider" which was attached to the appropriation bill for the Agricultural and Mechanical College by the Thirty-sixth Legislature:

> "Provided further, that no salary provided for in the Extension Service section of this act shall be paid to any person who has not first stood a satisfactory examination before the faculty of the Agricultural and Mechanical College of Texas, or a committee of not less than five selected from said faculty by the President of the Agricultural and Mechanical College. Said examination shall be conducted at such times and places and shall embrace such subjects as shall be decided upon by the faculty or committee herein provided for."

The courses of study in this division have been carefully outlined to meet the needs as stated above. They are as follows:

Agricultural Engineering. (2-6).

This course deals with the construction of farm terraces, the use of tractors and gasoline engines on the farm, improved farm machinery and farm buildings.

Agronomy. (4-2).

A course dealing with the principles of soil management and soil improvement, and the important tillage practices involved in the production of field crops, together with special instruction relative to seed selection.

Animal Husbandry. (1-4).

A general course briefly covering the judging and management of the various classes of farm animals adapted to Texas conditions.

Dairy Husbandry. (1-4).

This course will be devoted to the judging, feeding, breeding, care and management of dairy cattle, and the care and handling of dairy products.

Entomology. (3-0).

This course will comprise a discussion of the life histories of the most important insects which attack field and forage crops and those which affect fruits and vegetables. Some time will also be given to the study of parasites of domestic animals and the best methods for controlling them. The course will be varied to suit the conditions of those who are interested in this course.

Extension Work. (2-0).

This course will take up the history of Extension Work and a study of the Extension Service organization and problems of Extension administration.

Horticulture. (1-4).

The first part of this course will include detailed instructions in planning, equipping, and operating vegetable gardens for home and commercial purposes.

The second part will be devoted to a discussion of the preparation and laying out of land for home and commercial orchards, planting the trees, cultivating, fertilizing, pruning, and spraying.

The practice periods will be devoted to practical instruction in mixing and applying fertilizers, spraying, laying out of orchards, pruning, etc.

Extemporaneous Speaking. (3-0).

The purpose in this course is the development of an effective style of extemporaneous speaking. The aim is to give the student increased efficiency in speech planning and in speech delivery, as well as a store of usable speech material. This course is intended for those who are facing practical problems in public speaking in the extension field, in teaching, or in similar lines of public service.

Rural Social Science. (3-0.)

A discussion of some of the more important rural social problems.

Live Stock Sanitation. (3-2).

This course will deal with methods of preventing animal diseases. Special attention will be given to the common parasitic diseases.

These courses will be given in accordance with the following schedule:

7:30—Agronomy, M., T., W., Th.
8:30—Dairy Husbandry, T., Th., S.
Rural Social Science, M., W., F.
9:30—Horticulture, T.
Dairy Husbandry, Th., S.
Extemporaneous Speaking, M., W., F.
10:30—Agricultural Engineering, M., W.
Agronomy, T.
Live Stock Sanitation, S.
Extension Work, Th., F.
11:30—Agronomy, T.
Live Stock Sanitation, M., W., F., S.

1:30—Horticulture, T.
Entomology, M., W., F.
2:30—Agricultural Engineering, M., W.
Animal Husbandry, Th.
Horticulture, T.
3:30—Agricultural Engineering, M., W.
Horticulture, T.
Animal Husbandry, Th., F.
4:30—Agricultural Engineering, M., W.
Horticulture, T.
Animal Husbandry, Th., F.

THE FARMERS' SHORT COURSE.

(July 24 to July 29)

This course is planned to meet the needs of men and women who desire to farm on a better basis, and to make farming more profitable, and to make farm life more comfortable and attractive.

The teaching staff of the Farmers' Short Course will be composed of officers from the teaching division, the Experiment Station and the Extension Service of the College. There will also be several out-of-state speakers of national reputation.

Character of Work.

1. *Agriculture.*—Separate courses will be offered in the following departments: Agricultural Education, Agricultural Engineering, Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry, Plant Diseases and Insects, and Veterinary Medicine.

2. *Home Economics.*—A special course in Home Economics will be offered to girls and women. The work will consist of lectures and demonstrations in cooking, canning, basket making, and household art. A special feature of this course will be the Canning Club Contest for the Farm and Ranch Loving Cup.

3. *Course for Boys.*—A special course will be offered for boys. The work will be given in judging live stock, farm machinery, gas engines, tractors, budding and grafting of plants, and the like. A special feature of this course will be the Live Stock Judging Contest for the Progressive Farmer's Loving Cup.

Entertainment.

It is the desire of the College authorities that the Short Course offer the people who attend an opportunity to secure valuable information and at the same time refreshing and wholesome entertainment. The evenings will be given over principally to motion pictures and musicales, and a part of each day will be set aside for special forms of entertainment, including the annual reception to women and girls, crowning of the Canning Club Queen, bathing parties, baseball games, etc.

For illustrated announcement, giving full information in regard to the Farmers' Short Course write Dean E. J. Kyle.

SHORT COURSE FOR ELECTRIC METERMEN.

(June 12 to 17)

The object of this course is to give intensive instruction covering the principles of operation, the calibration and methods of repair of electric meters.

While this course will be of special interest to employees of those central stations which do not find it possible to provide training for the members of their meter departments, it will prove of value to anyone interested in the testing, adjusting or installing of electric meters.

The instruction will be given in the form of lectures, demonstrations and individual laboratory work, and will cover the fundamentals of electric circuits and the principles underlying the operation of electric meters.

Two courses will be given; one dealing with the more elementary principles of electricity and the single phase meter, and the other for more advanced men will cover polyphase meters.

A more detailed announcement may be obtained by addressing Professor F. C. Bolton, College Station, Texas.

BULLETIN

OF

THE AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS

Third Series. Vol. 7. JANUARY 1, 1921. No. 1

The Summer Session

JUNE 6—AUGUST 27, 1921

The College (Twelve Weeks).
The School of Cotton Classing (Six Weeks).
The Eight Weeks Course in Automobiles and Tractors.
The Farm Boys' Division (Four Weeks).
The Course for County Agents (Six Weeks.
The Farmers' Short Course (One Week).

COLLEGE STATION, TEXAS

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cumulate a sufficient number of credits to enable them to enter college without further preparation. In case their credits are not sufficient at graduation to admit them to college, the remainder may be made up in the Summer Session, as indicated above.

The above plan makes a distinct forward step in bringing the College into closer articulation with the non-accredited high schools of Texas. It is the desire of the authorities of the Agricultural and Mechanical College of Texas to extend its benefits to every student interested in a technical course in agriculture or engineering and to this end such students are invited to correspond with the Registrar of the Agricultural and Mechanical College of Texas, who will be glad to give them detailed information as to the conditions of their admission to this Institution.

The Summer Session will begin June 6, 1921.

CALENDAR.

SUMMER SESSION, 1921.

June 6—Registration Day.
July 4—Holiday.
July 5—Farm Boys' Division begins.
July 16—First term ends.
July 18—Second term begins.
July 25—Farmers' Short Course begins.
July 30—Farm Boys' Division and Farmers' Short Course end.
Aug. 27—Second term ends.

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS.

WILLIAM BENNETT BIZZELL, M. A., D. C. L,, LL. D.,
President.

SUMMER SESSION, 1921.

EXECUTIVE COMMITTEE OF THE FACULTY FOR THE SUMMER SESSION.

J. OSCAR MORGAN, M. S. A., Ph. D.,
Professor of Agronomy,
Chairman.

CHARLES PURYEAR, M. A., C. E., LL. D.,
Dean of the College.

C. P. FOUNTAIN, A. M.,
Professor of English.

MARTIN L. HAYES, B. S., A. M.,
Professor of Vocational Teaching.

D. SCOATES, A. E.,
Professor of Agricultural Engineering.

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CHARLES E. FRILEY, B. S., Registrar.
J. E. LEWIS, A. B., Y. M. C. A. Secretary.
S. H. HICKMAN, Superintendent of Y. M. C. A. Building.
J. R. GULLEDGE, A. B., Acting Librarian.

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Professor of Horticulture.

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Commandant.

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G. S. TEMPLETON, B. S.
Professor of Animal Husbandry.

WILLIAM E. GARNETT, M. A., Ph. D.
Professor of Rural Social Science.

A. T. POTTS, M. S.,
Professor of Vegetable Gardening.

R. F. SMITH,
Professor of Mathematics.

W. L. STANGEL, B. S., A. M.,
Professor of Horses.

D. W. WILLIAMS, M. S.,
Professor of Hogs.

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D. S. BUCHANAN, B. S.,
Assistant Professof of Animal Husbandry.

E. E. VEZEY, B. S.,
Assistant Professor of Physics.

F. G. MOORE, B. S.,
Assistant Professor of Chemistry.

G. L. DICKEY, B. S.,
Assistant Professor of Agricultural Education.

D. J. PRATT, A. M.,
Assistant Professor of Biology.

E. M. Regenbrecht, B. S.,
Assistant Professor of Animal Husbandry.

W. C. HUTTON,
Assistant Professor of Mechanical Engineering.

R. J. COLE, B. S.,
Instructor in Horticulture.

WALTER DOWNARD,
Instructor in Mechanical Engineering.

D. G. STURKIE, B. S.,
Instructor in Agronomy.

E. M. KING,
Instructor in Agricultural Engineering.

C. L. POUNCEY,
Instructor in Agricultural Engineering.

F. R. JONES, B. S.,
Instructor in Agricultural Engineering.

P. J. WALSER, B. S.,
Instructor in Animal Husbandry.

ORGANIZATION.

The work of the 1921 summer session will be given in the following six divisions:

1. The College.
2. The School of Cotton Classing.
3. The Eight Weeks Course in Automobiles and Tractors.
4. The Farm Boys' Division.
5. The Course for County Agents.
6. The Farmers' Short Course.

ADMISSION REQUIREMENTS.

In the College division courses will be offered subject to the same general requirements as in the regular session.

To enter the eight weeks course in automobiles and tractors the student must be sixteen or more years old, and must present a certificate from some reliable person showing that he is in good standing in his community.

The work of the Farm Boys' division is open only to boys not under fourteen or over eighteen years of age.

To enter the course for County Agents, the student must meet the minimum educational requirement, which is the equivalent of a first grade teacher's certificate.

There are no fixed requirements for admission to the School of Cotton Classing or the Farmers' Short Course.

DISCIPLINE.

Every student in the summer session is expected at all times to conform to the ordinary rules of propriety and gentlemanly conduct; to be truthful; to respect the rights of others; to be punctual and regular in attendance upon all required exercises; to apply himself diligently to his studies; and to have due regard for the preservation of College property.

For improper conduct, or failure to keep up with his studies, a student may at any time be required to withdraw from the College.

BOARD AND ROOM.

Students of the summer session will take their meals in the main dining hall. This hall is conveniently located with reference to dormitories, lecture rooms, and laboratories.

Room accommodations will be provided for summer session students in new, modern, fireproof dormitories.

As a result of recent legislative appropriations, extensive repairs have been made on all dormitories with the result that these buildings are modern in every respect, including screens for protection against mosquitoes and flies, sewage connections, electric lights and running water. These dormitories will be in direct charge of a summer session official, who will see that study hours are observed and that proper conditions for work are maintained.

The cost of room and board for the six weeks term will be $48.00. This does not include laundry. Bed linen, pillows and towels will be furnished by the student. All beds are single.

LOCATION.

The Agricultural and Mechanical College of Texas is located at College Station, on the Houston and Texas Central Railroad, and on the Fort Worth division of the International and Great Northern Railroad, ninety-two miles north of Houston. Both railroads run through the College grounds. The stations are only a short distance from the Academic building. At College Station there are express, telegraph and money order offices.

COLLEGE FACILITIES.

All the educational facilities of the College will be placed at the disposal of the students of the summer session. The College plant consists of twenty-five brick buildings. Nine of these are used for dormitories and sixteen for purposes of instruction. All buildings used for instruction are well equipped with laboratories. The Horticultural gardens, Agronomy plots, and Greenhouses are conveniently located, and form a part of the outside facilities for instruction.

The library of the College consists of the central collection, and several departmental libraries. The general library is housed in the Acadamic buildling and consists of about 25,000 volumes devoted to general literature and reference work. All the leading magazines and a number of daily papers are received at the library. All College departments have well selected technical libraries for the use of students intersted in special subjects. The general library will be open during the summer session on week days from 9 a. m. until 5 p. m., and from 8 to 10 p. m. Departmental libraries will be open from 9 a. m. to 5 p. m.

The College Exchange Store, located on the first floor of the

Academic building, will carry a complete line of text-books, reference books, stationery and general suplies needed by summer session students.

The modern, well-equipped College Hospital will be kept open during the entire summer session and the college physician and nurse will be on duty to serve the needs of summer session students.

PUBLIC LECTURES.

Lectures on pedagogical, sociological, and agricultural subjects will be given by the members of the teaching staff and by others invited for this purpose.

On each Sunday morning a regular Bible School will be conducted at the College and religious services will be conducted in the College Chapel by visiting ministers.

Y. M. C. A. BUILDING

ENTERTAINMENT.

Two motion picture shows will be given each week. An open air theatre has been provided for all picture shows and other evening entertainments. The Y. M. C. A. will be open all summer and a number of social gatherings will be held in the lobby of this building. The large swimming pool in the basement of the Y. M. C. A. building will be available for the use of the summer session students during the entire session. The instructor in athletics will give lessons in swimming to those who desire them. Outdoor athletic sports will be encouraged. The summer session is a member of a small baseball league and games are played with local teams.

EXPENSES.

For students in the College Division and the Course for County Agents.

Incidental fee	$10.00
Medical fee	2.50
Room and board per term of six weeks	48.00

For the Eight Weeks Course in Automobiles and Tractors.

Incidental fee	10.00
Medical fee	2.50
Room and board for term of eight weeks	64.00
Laboratory fee	60.00

For the School of Cotton Classing.

Tuition fee	25.00
Medical fee	2.50
Room and board per term of six weeks	48.00

For the Farm Boys' Division.

Incidental fee	5.00
Medical fee	2.50
Room and board per term of four weeks	32.00

Each student in the summer session, except those taking the eight weeks course in Automobiles and Tractors, will be required to deposit a trust fund of $5.00 to cover breakage of laboratory material or damage to college property. The unused portion of this will be refunded by mail as soon after the close of the summer session as the fund can be checked up.

A student once entering the summer session for a term, and having paid for that term, or the balance of it, forfeits all claim to said payment in case of voluntary withdrawal from the College before the expiration of said term, **except in case of sickness disqualifying him for the discharge of his duties for the rest of the term.** When such sickness takes place at the College, it must be attested by the College Surgeon before the student can receive the balance of his maintenance fund.

HOW TO REGISTER.

1. Report to the Business Manager, Room 120, first floor Academic building, and pay your fees. Be sure and specify the **Division** of the Summer Session you are entering. The Business Manager will give you a receipt, and a meal ticket.

2. Present your receipt to the Commandant, Room 101, first floor Academic building, for assignment to room.

3. Present your receipt to the Registrar, Room 223, second floor Academic building, and obtain an Assignment Card.

4. Take your Assignment Card to the Director of the Summer Session, Room 210, second floor, for assignment to classes.

5. Report promptly to all classes, as per the official schedules

6. If further information is needed consult the Registrar, or the Director of the Summer Session.

All official notices concerning the Summer Session will be posted on bulletin boards Nos. 5 and 6, first floor Academic building.

All inquiries relative to the Summer Session should be addressed to the Director of the Summer Session, or the Registrar, College Station, Texas.

THE COLLEGE.

(June 6 to August 27).

Three groups of courses will be given in this division, as follows:

1. Courses carrying credit toward graduation.
2. Courses carrying credit toward a certificate in agriculture.
3. Courses carrying entrance credit to the College.

All courses in this division are open only to those who have had the prerequisite training. The work will be given in two terms of six weeks each. The first term will begin June 6 and will end July 16. The second term will begin July 18 and will end August 27.

The basis for College credit is that two and one-half theory hours, or five practice hours in a term of six weeks, count as one term hour in the regular session.

The maximum amount of work a student may carry in a six weeks term is the equivalent of eight term hours, except in the case of men who have had approved teaching experience; with the consent of the Director of the Summer Session such men may carry the equivalent of nine term hours. All rules of the reg-

ular session apply to the Summer Session in the matters of prerequisites, grades, examinations, and class absences. Three cases of tardiness to class will be counted as one absence.

All work in the Summer Session must be taken in acordance with the published schedule.

The last day on which a student may complete his registration for work in the College Division is Friday of the first week of each term.

The right is reserved to withdraw any course for which less than five students register.

The courses for the first six-weeks term, which carry credit toward graduation are as follows:

NOTE:—The figures in parentheses following the name of a course indicate the number of hours per week, theory and practic, respectively, devoted to the course.

AGRICULTURAL ENGINEERING.

306S. Farm Motors. (5-10). Credit, 4 term hours.

This course will deal with the farm gas engine, its operation, care and repair.

Laboratory practice will consist of the operation, testing and examination of the different types of farm gas engines.

AGRONOMY.

301S. Soils. (10-5). Credit, 5 term hours.

This course gives the student a rather comprehensive knowledge of the soil and its management. It is given according to the following outline:

(a) The soil as a medium for root development, including a study of rock and its products; the soil mass, together with the physical properties of the soil and their modification; the organic content of the soil.

(b) The soil as a reservoir for water, including the functions of water in plant growth; the amount of water in the soil; the movement of soil water, and the control of soil water.

(c) Plant nutrients in the soil, including a careful study of both micro-organisms and macro-organisms, as they influence soil productiveness.

(d) The soil air; composition and fuctions of.

(e) The heat of the soil; comprising a study of the sources, functions and means of modifying soil temperature.

(f) External factors in soil management; tillage, crop adaptation, etc.

Text: Soils, Lyon, Fippin, and Buckman.

In the laboratory the student applies the principles learned in the class room to the actual management of soils.

Prerequisite: Chemistry 101S, 102S.

SECTION OF AGRONOMY FIELD LABORATORY

101S. Crop Production. (8-5). Credit, 4 term hours.

This course gives the student an elementary knowledge of the best practices involved in the production of field crops, including seed selection, the preparation of the seed bed, cultivation, etc. Crop rotation and its value is discussed in an elementary way.

The practice work in this course comprises an elementary study of the different farm crops, both in the laboratory and field, noting particularly those points that constitute ideal seed plants. When opportunity permits, the improved practices involved in crop production will be studied in the field.

ANIMAL HUSBANDRY.

101S. Judging Market Types of Cattle and Sheep. (0-10). Credit, 2 term hours.

The lectures are explanatory of the various classes and grades of cattle and sheep recognized in the leading stock markets. The points of these and their value to the stockman, the butcher and the consumer are fully discussed. The practice embraces a thorough training in the scoring of fat cattle and fat sheep; supplemented by the study of dressed carcasses as far as possible. In this course lectures are also given on the type and function of the dairy cow and thorough training is given in the scoring of dairy cattle. Comparative judging constitutes an important part of the work.

Text: Types and Market Classes of Live Stock, Vaughan.

102S. Judging Market Types of Horses and Swine. (0-10). Credit, 2 term hours.

The classes and grades of horses and swine recognized in the leading markets are discussed fully. The distinction of classes, and their importance, is made clear by the further use of the score card. Comparative judging is also an important factor in this course.

103S. Live Stock Production (Beef Cattle and Sheep). (5-10). Credit, 4 term hours.

A general course briefly covering the various phases of beef cattle and sheep production, including judging, breeding, care, and management. This course is especially designed to meet the needs of students taking Agricultural Education.

Text: Types and Market Classes of Live Stock, Vaughan.

202S. Judging Breed Types of Horses, Cattle, Sheep and Swine. (5-5). Credit, 3 term hours.

The lectures in this course treat of the origin, history, characteristics and adaptability of the various breeds of live stock. As far as the equipment in live stock will permit, the student is shown by means of representative animals the best types of the breeds of horses, cattle, sheep and swine.

Text: Types and Breeds of Farm Animals, Plumb.

The score cards of the different breed associations are used in determining the merits of the animals, and these are further explained in the lectures. An important part of the practice consists of comparative judging similar to that of the show ring.

Prerequisite: Animal Husbandry 101S, 102S.

PRINCE PERFECTO 11TH.

Pure Bred Hereford Steer, Bred, Fed and Exhibited by the Animal Husbandry Department. Grand Champion Steer State Fair, Dallas, 1920; First Prize Calf Over all Breeds, Grades and Cross Breeds College and Experiment Station Division, International Live Stock Exposition, Chicago.

BIOLOGY.

101S. General Botany. (5-10). Credit, 4 term hours.

The aim of this course is to provide the student who looks forward to entering some field of work in Agriculture with an accurate and thorough knowledge of living plants. The point kept steadily in view is, therefore, physiologic rather than anatomic. The first term begins with an outline of the external and internal form and structure necessary to the more extended study of life processes of plants. In the second term, types of various subdivisions of the plant kingdom are used to illustrate the great fundamental principles of development and adaptation, and to serve as a foundation for later work in classification.

The plan of the laboratory work is based on the inductive principle; the student is trained to acquire facts of development, structure and function by direct observation. Each student is required to keep a note-book in which he records by drawings and notes the results of his work.

Text: Nature and Development of Plants, Curtis.

CHEMISTRY.

101S. General Inorganic Chemistry. (8-8). Credit, 4½ term hours.

In this course the foundation principles of all chemical activity are fully discussed and demonstrated. The chemical elements and their compounds are then taken up separately and systematically. Industrial application of the more important chemical processes are briefly described and organic chemistry is touched upon. This course must precede all other chemical studies. An elementary course in physics should precede or accompany this course.

Text: General Chemistry for Colleges, Alex Smith.

General laboratory work, duplication of lecture experiments, and simple tests of technical importance.

206S. Organic Chemistry. (8-5). Credit, 4 term hours.

The subject is treated primarily as a pure science. An effort is made to select for illustrations such compounds as are of interest to the student of agriculture.

Text: Organic Chemistry, Moore.

In the laboratory a study is made of the properties and typical reactions of the compounds discussed in the lectures.

Prerequisite: Chemistry 101S, 102S.

CIVIL ENGINEERING.

300S. Field Practice. 3 Weeks.

This course includes the care, management and use of surveying instruments in making land, topographic and triangulation surveys, particular attention being paid to stadia and plane table methods.

Practical working conditions are approximated by requiring a full working day in the solutions of special problems in the several different surveys. Areas are computed, topography platted and maps made. The true meridian is determined by observations on the sun and Polaris. Each student is required to become reasonably proficient in the use of the surveyor's compass, transit, level and plane table.

Reference text: Principles and Practice of Surveying, Vol. 1, Breed and Hosmer, together with additional notes by the instructors.

400S. Field Practice. 3 Weeks.

A practice course in which effort is made to approximate actual working conditions of preliminary and location surveys.

This class is required to complete exercises in railroad sur-

veying; river gauging; road and street location; mapping. Each student is drilled in the use of the transit and level in running preliminary and location lines; with the surveyor's compass and pocket sextant in taking topography. Instruction is given in cross-sectioning, staking out bridge openings, running drainage areas and determining the size of drainage openings. The care and adjustment of instruments is reviewed and observations on the sun and Polaris for determining the true meridian and latitude are repeated. Additional problems of benefit to the student will be asigned when time permits.

Reference texts: Field Manual for Railroad Engineers, Nagle; Notes on Railroad Summer Practice, Love.

DAIRY HUSBANDRY.

102S. Dairying. (8-5). Credit, 4 term hours.

A course dealing with the secretion of milk, and the composition of milk and its products; the use and application of the lactometer in the determination of the total solids and adulterations; the various methods of cream raising and separation.

Text: Milk and Its Products, Wing.

DRAWING.

101S. Mechanical Drawing. (0-8).. Credit, 1½ term hours.

Care and use of drawing instruments, simple exercises in the use of drawing instruments, instrumental and free-hand lettering, geometrical constructions, construction of plane curves, orthographic and axonometric projections.

Text: Mechanical Drawing, Part I, Giesecke.

102S. Mechanical Drawing. (0-8).. Credit, 1½ term hours.

Problems in descriptive geometry involving points, lines, planes, tangency, intersections of planes and solids, intersections of solids, development of surfaces, shades and shadows, linear perspective. This course is parallel to and is an application of courses 103S, and 104S.

Text: Instrumental Exercises Descriptive Geometry, Mitchell.

103S. Descriptive Geometry. (5-0). Credit, 2 term hours.

Class room exercises, quizzes, and lectures on general and special problems relating to points, lines, planes and solids; problems in shades and shadows and in perspective. Special attention is paid to the representation of objects by orthographic projection, in the first and third angles.

Text: Descriptive Geometry, Giesecke and Mitchell.

104S. Descriptive Geometry. (5-0). Credit, 2 term hours.

A continuation of Drawing 103S.

105S. Freehand Drawing. (0-3). Credit, ½ term hour.

Drawing from geometrical solids, common objects, plaster casts, still life, to study form, proportion, light and shade; in the second term special attention is given to measuring, dimensioning and describing machines, machine parts, engineering structures and details.

The course is varied to meet the practical needs of students in the different engineering departments.

106S. Freehand Drawing. (0-3). Credit, ½ term hour.

A continuation of Drawing 105S.

201S. Mechanical Drawing. (0-8). Credit, 1½ term hours.

Standard conventional section lining, drawing of standard bolts, nuts, rivets and threads; helixes, elementary parts of machines and engineering structures; details and assemblages; Patent Office drawing, tracing, blue printing. The student is required to carefully sketch and measure his model in the drawing room, shop or field. From his dimensioned sketch he makes, on detail paper, traces and blue prints his working drawing.

The course is varied to meet the practical needs of students in the different engineering departments.

Text: Mechanical Drawing, Part III, Giesecke.

Reference Text: Engineering Drawing, French.

Prerequisite: Drawing 101S.

202S. Descriptive Geometry. (5-0). Credit, 2 term hours.

A continuation of Drawing 201S.

318S. Machine Drawing. (0-8). Credit, 1½ term hours.

Correct representation of objects; approved methods of dimensioning drawings; sketching and measuring machine parts; standard conventions; cycloidal and helical curves; screw threads, spur wheels, bevel and worm gears, cam construction.

Text: To be announced.

Prerequisite: Drawing 201S and 101S.

ECONOMICS.

305S. Fundamental Principles. (8-0). Credit, 3 term hours.

This course consists of the theory of economic activities concerning production, distribution, and consumption; and the practical problems of credit, banking, foreign exchange, monetary systems, cooperation, tariff, transportation, trusts, corporations, and finance and taxation. The assignments in the text will be

supplemented by expositions and explanations by the instructor, and by reports by the students.

Text: Principles of Political Economy, Gide.

306S. Fundamental Principles. (8-0). Credit, 3 term hours.

A continuation of Economics 305S.

ENGLISH.

103S. Rhetoric and Composition. (8-0). Credit, 3 term hours.

This course involves recitations, oral and written, readings from masterpieces of literature, and composition writing.

104S. Rhetoric and Composition. (8-0). Credit, 3 term hours.

A continuation of English 103S.

ENTOMOLOGY.

201S. General Entomology. (5-5). Credit, 3 term hours.

In this course the student is taught the systematic position of the various insects. The relation of the anatomy of insects to control measures is also studied. The life histories of the more common insects are given together with the methods of control for the injurious forms.

Text: Elementary Entomology, Sanderson & Jackson.

HORTICULTURE.

201S. Plant Propagation and Orcharding. (8-5). Credit, 4 term hours.

Lectures and recitations are given on the fundamental principles and method of plant propagation, including vegetables, fruit and ornamentals. The methods of planting and managing the home orchard are also covered.

Lectures and recitations.

Practice is given in propagation of plants from seed, budding, grafting and in planning, planting, pruning, spraying and general care of the home orchard.

Text: Plant Propagation, Kains. Lectures.

Prerequisite: Biology 101S, 102S.

PRACTICAL DEMONSTRATION IN BUDDING AND GRAFTING

202S. Vegetable Gardening. (8-5). Credit, 4 term hours.

Detailed instruction in planting, equipping and operating vegetable gardens for home and commercial purposes, and practical demonstrations and experience in the field; a thorough discussion of the methods used in Texas in growing the most important vegetable crops.

Text: Lectures and recitations.

The practice is devoted to the building of hotbeds, cold frames, the mixing and application of fertilizers, planting, cultivating, spraying and harvesting of vegetable crops.

MATHEMATICS.

101S. Algebra. (8-0). Credit, 3 term hours.

A rapid review of elementary topics, followed by the study

of quadratic equations, the binominal theorem, variation, the progressions; complex numbers, theory of equations, logarithms, limits, undetermined coefficients.

Review of certain topics of preceding courses.

Text: College Algebra, Reitz and Crathorne. Supplementary exercises.

102S. Algebra. (8-0). Credit, 3 term hours.

A continuation of Mathematics 101S.

103S. Plane Trigonometry. (8-0).. Credit, 3 term hours.

Goniometry, review of logarithms, solution of right triangles, problems of heights and distances, properties of triangles, solution of oblique triangles, geometrical applications.

Text: Plane and Spherical Trigonometry, Taylor and Puryear.

104S. Analytics. (8-0). Credit, 3 term hours.

The straight line, transformation of coordinates, circle, ellipse, parabola, hyperbola, graphs of trigonometric, logarithmic and exponental functions, tangents.

Review of certain topics of preceding courses.

Text: Analytic Geometry, Riggs. Supplementary exercises.

Prerequisite: Mathematics 101S, 103S.

MECHANICAL ENGINEERNG.

103S. Woodwork. (0-8). Credit, 1½ term hours.

Shop practice in the use of the common bench tools and power machinery for working in wood, as applied to joinery, elements of construction, and cabinet making. Practice in the use of shop records, systems, etc., is also given. Special work will be provided for those who have had manual training before entering.

104S. Forging. (0-8). Credit, 1½ term hours.

Shop practice in the use of blacksmith and general forge tools in the working of iron and steel. Also tempering, annealing, welding, case-hardening, etc.

201S. Pattern Making and Foundry Work. (0-8). Credit, 1½ term hours.

Shop practice in pattern making, moulding, and casting in iron, brass, etc.,

Prerequisite: Mechanical Engineering 103S.

309S. Machine Shop.. (0-8). Credit, 1½ term hours.

Practice in bench, and machine tool work in metals. This includes chipping, scraping, filing, babbiting, pipe fitting, drilling, turning, boring, grinding, milling machine work, etc.

Prequisite: Mechanical Engineering 104S.

PHYSICS.

203S. General. (8-8). Credit, 4½ term hours.

A general course in mechanics, heat, light, electricity and magnetism for engineering students.

In this course particular stress is laid on the derivation of the various formulas necessary for a thorough understanding of the mathematical relations existing in physical determinations. Much emphasis is placed on practical problems furnished by the instructors.

The practice includes about thirty experiments in the subjects named above. The work is, in general, quantitative.

Text: Reed and Guthe's College Physics.

Prerequisites: Mathematics 101, 103.

204S. General. (8-8). Credit, 4½ term hours.

A continuation of Physics 203S.

TEXTILE ENGINEERING.

101S. Cotton Classing. (0-5). Credit, 1 term hour.

This course includes practice in grading and stapling cotton, the methods of handling the cotton crop from the field to the mill, and other subjects of general interest to a cotton student will be presented in lecture form.

VETERINARY MEDICINE AND SURGERY.

371S. Clinics. (0-18). Credit, 3½ term hours.

Hospital service is required of all students taking this course. They must give daily attention to cases assigned. In addition to hospital duty, laboratory diagnosis and post-mortem examination will be required whenever necessary. An ambulatory clinic is maintained. Students will, as occasion may require, make trips to other parts of the State to observe and study outbreaks of diseases. Cases in clinic are treated under hospital conditions. When necessary they are held for observation and study; thus the student is given an opportunity to see the entire course of the diseases and the results of treatment. About fifteen hundred cases of non-infectious diseases, infectious diseases, and surgical diseases of animals and fowls are treated in clinic each year.

VOCATIONAL TEACHING.

305S. Vocational Education. (8-0). Credit, 3 term hours.

The purpose of this course is to give a clear understanding of the growth and importance of trade industrial and agricultural instruction, and to develop sympathy and enthusiasm for the introduction of vocational training in the public school. The history of the movement is traced; vocational guidance in the high school is considered carefully; various types of vocational schools are examined to discover their methods and content of subject-matter; and study is made of the nature and scope of vocational work carried on under the provisions of the Smith-Hughes Act.

307S. Related Subjects.. (5-0). Credit, 2 term hours.

This course deals with the selection and correlation of the subject-matter related to the shop work in the woodkorking trades chiefly from the standpoint of the teacher of related subjects. Mathematics, drawing, physics and safety first will be considered.

308S. Eucational Psychology. (8-0). Credit, 3 term hours.

This is a beginning course in psychology with special emphasis on its application to the problems of teaching. Stress will be placed upon instinct, habit formation, memory, attention, and the psychological principles of industrial subjects in the curriculum. The principles of adolescence form an interesting chapter. The text is supplemented to a large extent by the use of lectures and references.

402S. Administration of High School Agriculture. (5-5). Credit, 3 term hours.

This course is a study of the specific problems that confront the teacher carrying on the work of the department of agriculture in the high school. Among the topics discussed are: The selection of subject-matter suited to local conditions; agriculture in the curriculum; laboratory, field and home exercises; visual instruction; supervision of home projects; laboratory and library equipment; use and management of school farm; and community or extension work. The laboratory period will be used for the preparation of teaching material, and for working out individual assignments connected with the work.

Text: Materials and Methods in High School Agriculture, Hummel.

403S. Rural Education. (8-0). Credit, 3 term hours.

The primary purpose of this course is to make a study of rural education in its broad sense, with a view of preparing teachers and extension workers for more fficient service in rural communities. Some of the topics discussed are: Changes in rural education and the rural home, together with the factors

affecting such changes; the school as a community center; other agencies to be co-ordinated; community play and recreation; and the redirected rural school.

Text: Rural Life and Education, Cubberley.

407S. Methods of Teaching Industrial Education. (8-0). Credit, 3 term hours.

This course deals with the relation of the instructor to production; methods of analyzing a vocation into lessons and arranging these lessons in instructional order; analyzing the operation, trade knowledge and teaching points in a lesson; methods of instruction; line of approach; lesson planning; effect of surroundings and materials upon instructional conditions; interest factors; planning short unit course in shop and related work.

Text: The Instructor, The Man, and The Job, Allen.

ATHLETICS.

Practical Course for Athletic Coaches.

In addition to the courses described above, a practical course for Athletic Coaches will be given in connection with the Summer Session work.

This course will occupy five weeks, beginning June 6 and closing on July 9, 1921, and will be under the direction of D. X. Bible, Head Coach of Intercollegiate Athletics at the College.

This instruction is designed, primarily, for men who desire the best methods of coaching the most popular competitive sports in Junior Colleges, Academies and High Schools; namely, football, baseball, basketball, track and field athletics.

This school of Athletic Coaches should appeal strongly to men already engaged in coaching and to others who plan to take up such work, as there is a constant and increasing demand for competent men to direct athletics and to coach athletic teams.

The High School teacher capable of coaching athletic teams gains in many ways—his expert knowledge insures a larger salary, his association with the young athletes brings a certain respect and influence for good. The High School gains by entrusting its boys to a trained man, rather than to an outsider whose only ideal, perhaps, is that of victory without regard to the physical welfare of his pupils. But if the teacher-coach is to be successful, he must know his subject. There is no surer way

for him to lose the respect of his pupils than to attempt to coach them if he is not really skilled. It is believed the five weeks course of instruction will be beneficial to all those who desire to ground themselves well in the principles underlying the successful coaching of the sports.

Outline of Course.

1. **Football.** Six hours theory and ten hours practice a week for two weeks.

2. **Basketball.** One week. Six hours theory and ten hours practice.

3. **Baseball.** One week. Six hours theory and ten hours practice.

4. **Track and Field Athletics.** One week. Six hours theory and ten hours practice.

A part of the lecture work will be devoted to the theory of athletic training, treatment of sprains, bruises, bandaging, and first aid. These phases of the work will be given attention in the practice work also. One or two lectures will be given on the organization and direction of athletics.

No additional fee is required for this work, but each student should bring the following equipment:

One gym or basketball uniform.

One baseball uniform.

Football shoes.

Baseball shoes.

Tennis shoes.

This course carries no credit towards graduation.

COURSES CARRYING CREDIT TOWARD A TWO-YEAR CERTIFICATE IN AGRICULTURE.

(First Six Weeks' Term).

AGRICULTURAL ENGINEERING.

306S. Farm Motors. (5-10). Credit, 4 term hours.

For a description of this course see page 15.

AGRONOMY.

28S. Soils. (8-5). Credit, 4 term hours.

A study of the origin, structure, texture and crop adaptations of agriculturel soils. Soil fertility and its maintenance; manures, fertilizers, cover crops, fallowing, fall and spring plowing, crop rotations, diversification and the renovation of worn-out soils will receive attention in their proper order. This course is designed to meet the more practical needs of the two-year student.

Recitations and lectures.

Text: Soils and Fertilizers, Lyon.

Laboratory and field studies on the water-holding capacity of soils, capillarity, the influence of organic matter on the physi cal properties, lime and its effects, etc.

101S. Crop production. (8-5). Credit, 4 term hours.

For a description of this course see page 16.

ANIMAL HUSBANDRY.

101S. Judging Market Types of Cattle and Sheep. (0-10). Credit, 2 term hours.

For a description of this course see page 17.

102S. Judging Market Types of Horses and Swine. (0-10). Credit, 2 term hours.

For a description of this course see page 17.

202S. Judging Breed Types of Horses, Cattle, Sheep and Swine. (5-5). Credit, 3 term hours.

For a description of this course see page 17.

55S. Live Stock Feeding. (5-5). Credit, 3 term hours.

This course embraces a study of the feeding of all classes of farm animals, horses, cattle, sheep and swine. The subject

of animal nutrition, the composition of available feeding stuffs and the calculating of rations, are treated fully.

Text: Feeds and Feeding—Abridged, Henry and Morrison.

The practice consists largely of calculating rations for different classes of farm animals, special attention being given to the study of Texas grown feeding stuffs.

DAIRY HUSBANDRY.

102S. Dairying. (8-5). Credit, 4 term hours.

For a description of this course see page 20.

ENTOMOLOGY.

201S. General Entomology. (5-5). Credit, 3 term hours.

For a description of this course see page 22.

HORTICULTURE.

21S. Plant Culture and Propagation. (8-5). Credit, 4 term hours.

A modification of course 201S, page 22. The first part is devoted to plant culture, and is followed by a thorough discussion of the propagation of plants, including fruits, ornamentals, and vegetables.

Lectures and recitations.

Practice work in the propagation of seedlings and the different forms of budding and grafting, layering, etc.

Text: Principles of Plant Culture, Goff.

202S. Vebetable Gardening. (8-5). Credit, 4 term hours.

For a description of this course see page 23.

ENTRANCE CREDIT COURSES.

The following courses will be offered during the first six weeks' term for entrance credit to the College, each course carrying a credit of one-half unit:

Agriculture. (8-0).

Physics. (8-0).

Physiology. (8-0).

Physiography. (8-0).

SCHEDULE OF COURSES IN THE COLLEGE DIVISION.

(First Six Weeks' Term).

Theory.

7:30—Agronomy 301S, Soils, daily.
Animal Husbandry 103S, Beef Cattle and Sheep, daily except Saturday.
Vocational Teaching 305S, Vocational Education, daily.
Mathematics 101S, Algebra, daily.
Mathematics 102S, Algebra, daily.
Physics 203S, General, daily.
Agronomy 28S, Soils, daily.
Animal Husbandry 202S, Breed Types of Horses, Cattle, Sheep and Swine, daily, except Saturday.
English 104S, Rhetoric and Composition, daily.
Physics, for entrance credit, daily.

8:30—Agronomy 301S, Soils, T., Th., S.
Economics 305S, Fundamental Principles, daily.
Economics 306S, Fundamental Principles, daily.
Mathematics 101S, Algebra, M., Th.
Mathematics 102S, Algebra, M., Th.
Mathematics 103S, Plane Trigonometry, T., W., F., S.
Mathematics 104S, Analytics, T., W., F., S.
Physics 203S, General, M., Th.
Agronomy 28S, Soils, M., W.
Agronomy 101S, Crop Production, T., Th., F., S.
English 104S, Rhetoric and Composition, M., W.
Physics, for entrance credit, M., W.
Agriculture for entrance credit, T., Th., F., S.

9:30—Biology 101S, General Botany, daily except Saturday.
Chemistry 206S, Organic Chemistry, W., Th., F., S.
Vocational Teaching 308S, Educational Psychology, daily.
Mathematics 103S, Plane Trigonometry, M., T., W., Th.
Mathematics 104S, Analytics, M., T., W., Th.
Physics 204S, General, F., S.
Agronomy 101S, Crop Production, T., Th., F., S.
Agriculture, for entrance credit, T., Th., F., S.

10:30—Chemistry 206S, Organic Chemistry, W., Th., F., S.
English 103S, Rhetoric and Composition, daily.
Physics 204S, General, daily.
Animal Husbandry 55S, Live Stock Feeding, daily except Saturday.
Horticulture 21S, Plant Culture and Propagation, daily.
Entomology 201S, General Entomology, daily except Saturday.
Athletics, daily.

11:30—Economics 305S, Fundamental Principles, F., S.
Economics 306S, Fundamental Principles, F., S.
Vocational Teaching 305S, Vocational Education, M., W.
Vocational Teaching 308S, Educational Psychology, T., Th.
English 103S, Rhetoric and Composition, M., W.
Horticulture 21S, Plant Culture and Propagation, M., W.

1:30—Agricultural Engineering 306S, Farm Motors, daily except Saturday.
Chemistry 101S, General Inorganic Chemistry, daily except Saturday.
Dairy Husbandry 102S, Dairying, daily except Saturday.
Horticulture 201S, Plant Propagation and Orcharding, daily except Saturday.
Horticulture 202S, Vegetable Gardening, daily except Saturday.
Vocational Teaching 402S, Administration of High School Agriculture, daily except Saturday.
Vocational Teaching 403S, Rural Education, daily except Saturday.
Physiography, for entrance credit, daily except Saturday.

2:30—Chemistry 101S, General Inorganic Chemistry, M., W., F.
Dairy Husbandry 102S, Dairying, M., W., F.
Horticulture 201S, Plant Propagation and Orcharding, M., W., F.
Horticulture 202S, Vegetable Gardening, M., W., F.
Vocational Teaching 403S, Rural Education, M., W., F.
Physiography, for entrance credit, M., W., F.

3:30—Physiology, for entrance credit, daily, except Saturday.

4:30—Physiology, for entrance credit, M., W., F.

Practice.

7:30—

8:30—Agronomy 301S, Soils, M., W., F.
Animal Husbandry 103S, Beef Cattle and Sheep, daily, except Saturday.

9:30—Agronomy 301S, Soils, M., W., F.
Animal Husbandry 103S, Beef Cattle and Sheep, daily, except Saturday.
Biology 101S, General Botany, S.
Chemistry 206S, Organic Chemistry, M., T.
Animal Husbandry 202S, Breed Types of Horses, Cattle, Sheep and Swine, S.

10:30—Biology 101S, General Botany, M., T., W., Th., S.
Chemistry 206S, Organic Chemistry, M., T.
Textile Engineering 101S, Cotton Classing, M., W., F.
Animal Husbandry 101S, Market Types of Cattle and Sheep, daily, except Saturday.

Animal Husbandry 102S, Market Types of Horses and Swine, S.
Animal Husbandry 202S, Breed Types of Horses, Cattle, Sheep and Swine, F., S.

11:30—Biology 101S, General Botany, M., T., W., Th.
Chemistry 206S, Organic Chemsitry, M.
Entomology 201S, General Entomology, daily, except Saturday.
Textile Engineering, Cotton Classing, M., W., F.
Animal Husbandry 101S, Market Types of Cattle and Sheep, daily, except Saturday.
Animal Husbandry 102S, Market Types of Horses and Swine, S.
Animal Husbandry 202S, Breed Types of Horses, Cattle, Sheep and Swine, F., S.

1:30—Agronomy 28S, Soils, M., W.
Agronomy 101S, Crop Production, T., Th.
Animal Husbandry 102S, Market Types of Horses and Swine, F.
Animal Husbandry 55S, Live Stock Feeding, M., W.

2:30—Agricultural Engineering 306S, Farm Motors, daily, except Saturday.
Chemistry 101S, General Inorganic Chemistry, T., Th.
Dairy Husbandry 102S, Dairying, T., Th.
Horticulture 201S, Plant Propagation and Orcharding, T., Th.
Horticulture 202S, Vegetable Gardening, T., Th.
Vocational Teaching 402S, Administration of High School Agriculture, daily, except Saturday.
Agronomy 28S, Soils, M., W.
Agronomy 101S, Crop Production, T., Th.
Animal Husbandry 102S, Market Types of Horses and Swine, F.
Animal Husbandry 55S, Live Stock Feeding, M., W.
Horticulture 21S, Plant Culture and Propagation, F.

3:30—Agricultural Engineering 306S, Farm Motors, daily, except Saturday.
Chemistry 101S, General Inorganic Chemistry, M., T., W., Th.
Dairy Husbandry 102S, Dairying, T., Th.
Horticulture 201S, Plant Propagation and Orcharding, T., Th.
Horticulture 202S, Vegetable Gardening, T., Th.
Physics 203S, General, T., W., Th., F.
Physics 204S, General, T., W., Th., F.
Agronomy 28S, Soils, M.
Agronomy 101S, Crop Production, T.

Animal Husbandry 102S, Market Types of Horses and Swine, W., Th., F.
Animal Husbandry 55S, Live Stock Feeding, M.
Horticulture 21S, Plant Culture and Propagation, W., F.

4:30—Chemistry 101S, General Inorganic Chemistry, M., W.
Dairy Husbandry 102S, Dairying, T.
Horticulture 201S, Plant Propagation and Orcharding, T.
Horticulture 202S, Vegetable Gardening, T.
Physics 203S, General, T., W., Th., F.
Physics 204S, General, T., W., Th., F.
Animal Husbandry 102S, Market Types of Horses and Swine, W., Th., F.
Horticulture 21S, Plant Culture and Propagation, W., F.
Athletics, daily.

The time for each course in the following list will be arranged when the course is asked for:

Drawing.

101S, Mechanical Drawing, (0-8).
102S, Mechanical Drawing, (0-8).
103S, Descriptive Geometry, (5-0).
104S, Descriptive Geometry, (5-0).
105S, Freehand Drawing, (0-3).
106S, Freehand Drawing, (0-3).
201S, Mechanical Drawing, (0-8).
202S, Descriptive Geometry, (5-0).
318S, Machine Drawing, (0-8).

Mechanical Engineering.

103S, Woodwork, (0-8).
104S, Forging, (0-8).
201S, Pattern Making and Foundry Work, (0-8).
309S, Machine Shop, (0-8).

Veterinary Medicine and Surgery.

371S, Clinics, (0-18).

Vocational Teaching.

307S, Related Subjects, (5-0).
407S, Methods of Teaching Industrial Education, (8-0).

SECOND SIX WEEKS' TERM

COURSES CARRYING CREDIT TOWARD A DEGREE

AGRICULTURAL ENGINEERING

315S. Farm Shop. (3-15). Credit, 4 term hours.

This course is especially designed for those intending to teach agricultural engineering in vocational schools. The work will include such subjects as are usually taught in vocational high schools, such as soldering, tinning, erection of line shafting, belt lacing, power transmission, pipe fitting, gas engines, fundamental principles in the care and operation of farm machinery and sufficient forging to enable the student to make ordinary farm repairs.

A LESSON IN TRACTOR OPERATION

401S. Tractors. (3-10). Credit, 3 term hours.

In this course a study will be made of the design, operation and repair of different types of gas tractors.

Laboratory practice will consist of a study of the different parts of, together with the testing and operating, gas tractors.

Prerequisite: Agricultural Engineering 306S.

AGRONOMY.

302S. Farm Crops. (10-5). Credit, 5 term hours.

In this course, all the leading field crops are studied with regard to structure, composition, races and varieties, breeding or improvement, soils, rotations, fertilizers, together with tillage operations, harvesting and marketing.

Text: Field Crops for the Cotton Belt, Morgan; Forage Plants and Their Culture, Piper.

In the laboratory, field, and greenhouse, the student makes a careful study of the leading characteristics of the different crops; seeds are studied as regards purity, and other points that determine value.

Prerequisite: Agronomy 301; Bioligy 101S, 102S.

Animal Husbandry.

104S. Live Stock Production (Hogs and Horses). (5-10). Credit, 4 term hours.

This is a continuation of Animal Husbandry 103S, page 17, covering hogs and horses.

201S. Farm Poultry. (5-5). Credit, 3 term hours.

This is a general course on Farm Poultry and treats of the breeds and types of poultry; the principles of breeding and mating of fowls; incubation and brooding; feeding for growth and egg production; winter and summer management; housing and hygiene; sanitation; disease; parasites and their treatment; preparing poultry for market, marketing. It deals with the practical application of these principles to general farm conditions.

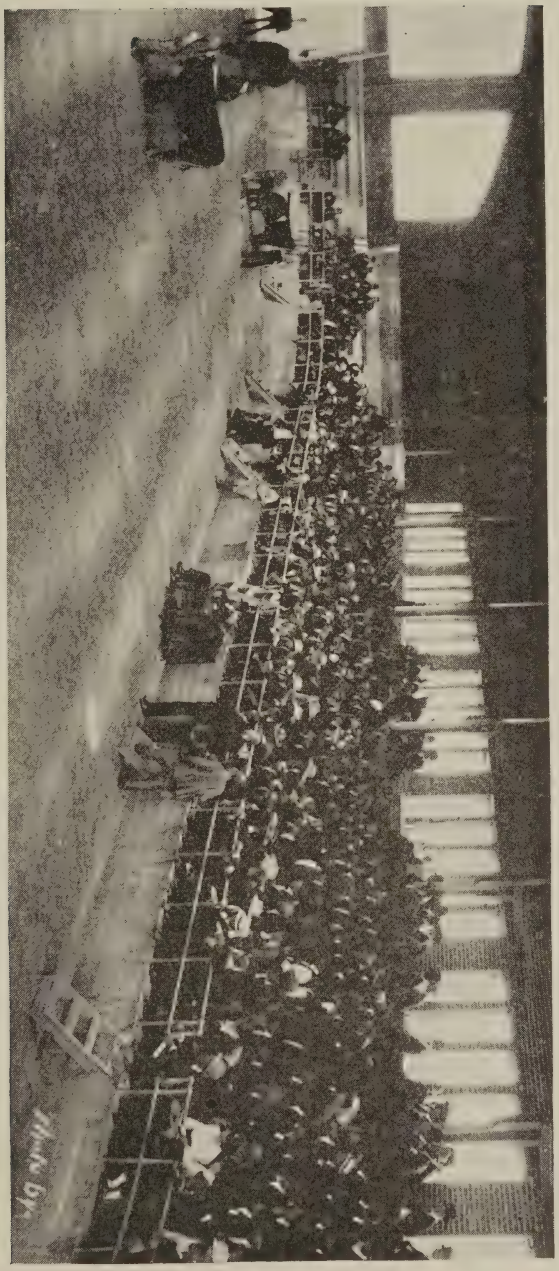
Text: Poultry Production, Lippincott.

The practice work consists of the study of breeds and types, incubators and brooders, housing, judging of fancy and utility poultry, candling and grading of eggs and poultry products, killing and dressing poultry.

BIOLOGY.

102S. General Botany. (5-10). Credit, 4 term hours.

The aim of this course is to provide the student who looks forward to entering some field of work in Agriculture with an accurate and thorough knowledge of living plants. The point kept steadily in view is, therefore, physiologic rather than anatomic. The first term begins with an outline of the external and internal form and structure necesary to the more extended study of life processes of plants. Types of various subdivisions of the



A DEMONSTRATION IN STOCK JUDGING

plant kingdom are used to illustrate the great fundamental principles of development and adaptation, and to serve as a foundation for later work in classification.

The plan of the laboratory work is based on the inductive principle; the student is trained to acquire facts of development, structure and function by direct observation. Each student is required to keep a note-book in which he records by drawings and notes the results of his work.

Text: Nature and Development of Plants, Curtis.

CHEMISTRY.

102S. General Inorganic Chemistry. (8-8). Credit, 4½ term hours.

This is a continuation of Chemistry 101S, page 19.

309S. Agricultural Chemistry. (8-10). Credit, 5 term hours.

This is a study of the fundamental chemical principles of agriculture, and in addition to giving the student a grasp of the application of chemistry it helps to understand the chemical terms used in Experiment Station literature. The chemistry of plant substances, soils, irrigation water, fertilizers, insecticides, and fungicides is studied.

The laboratory work serves to familiarize the student with the composition and behavior in the laboratory of many materials important in agriculture. It consists of the chemical analysis of feeds, soils, fertilizers, insecticides and fungicides.

Text: Chemistry of Agriculture, Stoddard. Laboratory Manual of Agricultural Chemistry, Hedges and Bryant.

Prerequisite: Chemistry 206S.

DRAWING.

101S. Mechanical Drawing. (0-8). Credit, 1½ term hours.

For a description of this course see page 20.

104S. Descriptive Geometry. (5-0). Credit, 2 term hours.

For a description of this course see page 21.

FARM MANAGEMENT.

402S. Farm Management. (8-10). Credit, 5 term hours.

Farming as a business. This course covers in condensed form the application of principles taught in the various agricultural subjects to the business management of the farm. It also includes such problems as size, diversity and quality of business, labor effciency and farm layout.

Practice work includes the keeping of simple farm accounts and the application to given farms of the principles covered in theory. Plans for the layout, organization, and management of one farm are worked out.

Text: Farm Management, Warren.

RURAL SOCIAL SCIENCE.

401S. Rural Economics. (8-0). Credit, 3 term hours.

On the basis of general principles and concepts developed in Economics 306 attention is here given to the bearing of these principles in agricultural life. The discussions in the time devoted to recitations will be developments of thoughts brought out in some suitable text. In the light of these discussions, special studies will be made of different systems of land tenure, rural credits, and co-operative movements.

Text: To be selected.

Prerequisite: Economics 306S.

VETERINARY MEDICINE AND SURGERY.

372S. Clinics. (0-18). Credit, 3½ term hours.

For a description of this course see Veterinary Medicine and Science, 371S, page 25.

VOCATIONAL TEACHING.

305S. Vocational Education. (8-0). Credit, 3 term hours.

The purpose of this course is to give a clear understanding of the growth and importance of trade, industrial and agricultural instruction, and to develop sympathy and enthusiasm for the introduction of vocational training in the public school. The history of the movement is traced; vocational guidance in the high school is considered carefully; various types of vocational schools are examined to discover their methods and content of subject-matter; and study is made of the nature and scope of vocational work carried on under the provisions of the Smith-Hughes Act.

402S. Administration of High School Agriculture. (5-5). Credit 3 term hours.

This course is a study of the specific problems that confront the teacher carrying on the work of the department of agriculture in the high school. Among the topics discussed are: The selection of subject-matter suited to local conditions! agriculture in the curriculum; laboratory, field and home exercises; visual in-

struction; supervision of home projects; laboratory and library equipment; use and management of school farm; and community or extension work. The laboratory period will be used for the preparation of teaching material, and for working out individual assignments connected with the work.

310S. Vocational Guidance. (8-0). Credit, 3 term hours.

This course is devoted to a study of the methods, problems and administration of vocational guidance. The course will include a discussion of vocational guidance and surveys and literature, supervision, analysis, possibilities of vocational guidance in regular school work, means of discovering vocational aptitudes, work of vocational counselors, and vocational bureaus.

416S. Administration and Supervision of Industrial Education. (8-0). Credit, 3 term hours.

This course deals with the various problems encountered in introducing industrial education into a school system and in developing the work in its varied forms. Among the topics discussed are: The place of industrial education to fine arts, nature study, geography, and arithmetic; organization of courses of study for high schools, technical schools, trade schools, and corporation schools; safety first; plans and equipment; selection of teachers; improvement of teachers in service; formulating programs; selection of text-books, classroom management.

418S. Visual Instruction. (3-10). Credit, 3 term hours.

The purpose of this course is to study the theory and practice of visual instruction and to acquire skill in the preparation and use of material for visual instruction. The course will include the designing and making of charts, use of the camera making negatives and lantern slides, coloring lantern slides, use of stencils, mimeoscope and projection lantern, operation and care of motion picture machine, graphic representation of data and the use of the cartoon. Instruction will also be given in preparation and display of material for fairs and exhibits.

SCHEDULE OF COURSES FOR THE SECOND SIX WEEKS' TERM.

Theory.

7:30—Agricultural Engineering 401S, Tractors, M., W., F.
Agronomy 302S, Farm Crops, daily, except Saturday.
Animal Husbandry 104S, Live Stock Production (Hogs and Horses), daily, except Saturday.

Rural Social Science, 401S, Rural Economics, daily.
Vocational Teaching, 305S, Vocational Education, daily.

8:30—Agronomy 302S, Farm Crops, daily, except Saturday.
Rural Social Science, 401S, Rural Economics, M., W.
Farm Management 402S, Farm Management, T., Th., F., S.
Vocational Teaching 305S, Vocational Education, T., Th.

9:30—Biology 102S, General Botany, daily, except Saturday.
Chemistry 309S, Agricultural Chemistry, daily.
Farm Management 402S, Farm Management, T., Th., F., S.

10:30—Vocational Teaching 402S, Administration of High School Agriculture, daily, except Saturday.
Chemistry 309S, Agricultural Chemistry, M., W.

11:30—

1:30—Agricultural Engineering 315S, Farm Shop, M. W., F.
Animal Husbandry 201S, Farm Poultry, daily except Saturday.
Chemistry 102S, General Inorganic Chemistry, daily, except Saturday.
Vocational Teaching 418S, Visual Instruction, M., W., F.

2:30—Chemistry 102S, General Inorganic Chemistry, M., W., F.

Practice.

7:30—Agricultural Engineering 401S, Tractors, T., Th., S.
Agronomy 302S, Farm Crops, S.

8:30—Agricultural Engineering 401S, Tractors, T., Th., S.
Agronomy 302S, Farm Crops, S.
Animal Husbandry 104S, Live Stock Production (Hogs and Horses), daily, except Saturday.

9:30—Agricultural Engineering 401S, Tractors, T., Th., S.
Agronomy 302S, Farm Crops, F., S.
Animal Husbandry 104S, Live Stock Production, (Hogs and Horses), daily, except Saturday.
Farm Management 402S, M., W.

10:30—Agricultural Engineering 401S, Tractors, S.
Agronomy 302S, Farm Crops, F.
Biology 102S, General Botany, daily, except Saturday.
Chemistry 309S, Agricultural Chemistry, T., Th., F., S.
Farm Management 402S, Farm Management, M., T., W., Th.

11:30—Biology 102S, General Botany, daily, except Saturday.
Chemistry 309S, Agricultural Chemistry, T., Th., F., S.
Farm Management 402S, Farm Management, M., T., W., Th.
Vocational Teaching 402S, Administration of High School Agriculture, daily, except Saturday.

1:30—Vocational Teaching 418S, Visual Instruction, T., Th.

2:30—Agricultural Engineering 315S, Farm Shop, daily, except Saturday.
Animal Husbandry 201S, Farm Poultry, W., F.
Chemistry 102S, General Inorganic Chemistry, T., Th.
Vocational Teaching 418S, Visual Instruction, daily, except Saturday.

3:30—Agricultural Engineering 315S, Farm Shop, daily except Saturday.
Animal Husbandry 201S, Farm Poultry, W., F.
Chemistry 102S, General Inorganic Chemistry, M., T., W., Th.
Vocational Teaching 418S, Visual Instruction, M., W., F.
Chemistry 309S, Agricultural Chemistry, Th.

4:30—Agricultural Engineering 315S, Farm Shop, daily, except Saturday.
Animal Husbandry 201S, Farm Poultry, F.
Chemistry 102S, General Inorganic Chemistry, M., W.
Chemistry 309S, Agricultural Chemistry, Th.

The time for each course in the following list will be arranged when the course is asked for.

Drawing.

101S Mechanical Drawing, (0-8).
104S. Descriptive Geometry, (5-0).

Veterinary Medicine and Surgery.

372S. Clinics, (0-18).

Vocational Teaching.

310S. Vocational Guidance, (8-0).

416S. Administration and Supervision of Industrial Education, (8-0).

THE SCHOOL OF COTTON CLASSING.

(JUNE 6 TO JULY 16).

The object of the School of Cotton Classing is to prepare young men for cotton buying and the managing of cotton warehouses, and to offer to farmers the opportunity of increasing their knowledge of the leading farm product of Texas.

A study is made of the elements which determine the commercial grades of cotton; the influence which affects the price of cotton; the system of financing the crop from field to factory, and the relation of exchanges to the business in general. Each class is furnished with new samples for practice and the work is patterned after that of a cotton office. The samples used in the summer school are obtained from the cotton states west of the Mississippi river and an effort is made to familiarize the student with the different characteristics of cotton grown in the southwest.

Special attention will be paid to the staple of cotton, and experts in this branch will give instruction in this subject. Many samples of various lengths of staple will be provided for students taking up this line of work.

The government standards for classing cotton, which have been adopted by all the exchanges, will be used.

The announcement giving complete details relative to the work of this division will be ready for distribution March 1, 1921, and can be secured by addressing Professor J. B. Bagley, College Station, Texas.

EIGHT WEEKS' COURSE IN AUTOMOBILES AND TRACTORS.

Demand for Mechanics.

There is quite a demand for men who can operate and repair farm gas engines, tractors and automobiles. This demand comes from garages, manufacturers, merchants, and farmers. Large farms, as a result of the shortage of farm labor, are today using more power machinery such as automobiles, trucks, tractors and gas engines. To get the most out of this power and the improved farm machinery to which it is attached, it is necessary that it be properly operated. Men to do this are not very plentiful.

In order to help relieve this situation, the Agricultural Engineering Department of the A. and M. College of Texas has been offering for the past two years an eight weeks course to train men to do this work. This course will be offered as a part of the 1921 Summer Session work.

Kind of Work Included in Course.

The gas engine is the basis of tractors, automobiles, and the farmer's power—hence the course includes a very thorough training in gas engines. All types of gas engines are studied, from the one cylinder up to the eight cylinder. The student actually takes apart these engines, puts them back together and makes them run. In this way he learns how to time valves, ignition, grind valves, etc. Bearings are poured and scraped. Soldering, hardening of steel and other practical points needed in motor repair are taught.

A very careful study, which includes repair and adjustment, is made of chassis—the springs, rear end transmission.

Two weeks are spent in the study of ignition of multi-cylinder motors. The different systems found on tractors and automobiles are taken up. The student is expected to wire up the various systems as they are found on the tractors and automobiles in the laboratory.

Magnetos are taken apart and studied; they are timed and repaired. Every effort possible is made to get the student thoroughly familiar with the principles underlying gas engine ignition.

Oxygen-acetylene welding is given in the regular course. Students get an opportunity to do welding. The department does considerable welding for the outside and the students get the benefit of seeing this work done.

A detailed study of tractors is included which requires the students to use them in the field. The Agricultural Engineering

Department has a 100 acre farm which is reserved for tractor work with students. All the field operations are done, such as plowing, discing, threshing, cultivating, hauling, etc.

Equipment.

The laboratories contain an abundance of equipment to teach the number of students we allow to attend the course at one time. Here are a few of the things to be found in the laboratory:

19 Single cylinder farm gas engines.
1 Two cylinder farm gas engine.
27 Multi-cylinder gas engines taken from automobiles and trucks.
3 Trucks.
7 Automobiles.
9 Tractors.
7 Automobile chassis.

Added to the above equipment are several ignition, starting and lighting systems, such as are found on automobiles, mounted on special boards for the students to study. A large assortment of magnetos and carubretors are on hand to give instruction in their repair and construction. This equipment is being constantly increased.

Instruction.

All work in this course is taught by capable men who not only know the theory of the work but who have had considerable practical experience. They are men who know how to do things and can teach others what they know.

The work is carried on six hours a day. A small part of the day is taken up in the class room, reciting the lessons studied the night before, listening to a lecture or watching a demonstration. Besides the regular teaching force, specialists from various manufacturers assist by giving lectures or field demonstrations.

Length of Course.

The course is eight weeks in length. At the end of the time the student may repeat the course if he does not get his certificate, or if he wants additional work, he may specialize for four weeks longer.

When Courses Start.

Courses start as follows: February 7, 21; March 7, 21; April 4, 18;May 2, 16, 30; June 13, 27.

Who May Enter Course.

In order to enter this course the student must be eighteen or more years old, and must present a certificate from some reliable person showing that he is in good standing in his community.

For the courses starting May 30th and June 13th and 27th, students sixteen years old will be allowed to attend.

Cost of Course.

The following fees are charged all who enter the course:

Incidental fee	$ 10.00
Medical fee	2.50
Board and room for time of eight weeks	64.00
Laboratory fee	60.00
	$136.50

The incidental fee is for sundry expenses, such as printed forms, examination books, etc.

The Medical fee pays for the services of the College Surgeon and Hospital staff who are at the service of the students.

The Maintenance fee includes board, fuel, laundry, light, room rent, bedstead, mattress, table and chair.

The above covers all the expenses a student will be called upon to bear. He is requird to make a deposit of $10.00 for his books and tools. The money is returned to him at the end of the course, providing he returns the books and tools.

Those Who Complete the Course.

At the completion of a course, if the student has done satisfactory work and passed, he is given a certificate showing that he has done so. These certificates are given only to those who do satisfactory work and complete the course. Should a student fail to pass the course, he may take it again, providing the instructors think he will not be wasting his time, but he must pay the same fees for the second course as he did for the first. Every effort is made to locate positions for those who get certificates and have no employment.

Advanced Work.

Students who complete the course and want to specialize in tractors, batteries, ignition, motors, etc., may take an additional four weeks course at half the price of the regular course. This advance course starts on the same dates as the regular courses.

The announcement, giving more complete details relative to the work of this division, can be secured by addressing Professor of Agricultural Engineering, College Station, Texas.

THE FARM BOYS' DIVISION.

(July 5 to July 30).

The object of this course is to offer to boys not under fourteen or over eighteen years of age, elementary, but practical courses in subjects relating to farm life.

For several years there has been growing, throughout the State, a feeling that our farm boys should be given better opportunities for securing special training in agricultural and farm-life subjects. A great majority of these boys have not had access to schools of sufficient grade to enable them to enter college courses, and it is to meet their needs for practical instruction in agriculture that the Farm Boys' Division has been added to the work of the Summer Session.

Courses will be given covering the important Divisions of agriculture as follows:

Agricultural Engineering. (1-4).

This work will consist of practical demonstrations relative to the use of farm tractors, gasoline engines, farm machinery, the construction of farm terraces, belt lacing, and rope tying.

Agronomy. (1-4).

This course includes practical demonstrations and lectures covering the important methods of tillage, use of fertilizers and manures, crop rotation, and seed selection.

Animal Husbandry. (1-8).

A general course briefly covering the various phases of beef cattle, horses, hogs, and sheep production, including judging, feeding, and management.

Dairy Husbandry. (1-4).

This course will be devoted to the judging, feeding, breeding, care and management of dairy cattle, and the care and handling of dairy products.

Horticulture. (1-4).

The theory periods of this course will be devoted to discussions of the fundamental principles underlying:

1. The propagation of plants by seeds, cuttings, budding, and grafting.

2. Orcharding, including laying out of orchard lands and the planting and care of the orchard.

3. Vegetable gardening, including preparation of the land, construction of cold frames and hot-beds, fertilizers, and preparing vegetables for market.

The practice will be devoted to practical work in making cuttings, budding, and grafting; in laying out orchards, pruning, and spraying; in mixing and applying fertilizers.

Pounltry Husbandry. (1-6).

The work in poultry Husbandry will include a study of the important phases of the industry as it applies to conditions on the farms of the state. Considerable time will be devoted to breeding, feeding, housing, sanitation, incubation, brooding, judging, and marketing.

The practice work will consist of the study of breeds and types, candling and grading eggs, killing, dressing and marketing poultry.

These courses will be given in accordance with the following schedule:

7:30—Horticulture, T., Th., S.
8:30—Horticulture, Th., S.
Poultry, M., T., W., F.
9:30—Poultry, T., W., F.
10:30—Agricultural Engineering, M., W., F.
Dairy Husbandry, T., Th., S.
11:30—Agricultural Engineering, W., F.
Dairy Husbandry, Th., S.
1:30—
2:30—Animal Husbandry, M., W., F.
Agronomy, T., Th.
3.30—Animal Husbandry, M., W., F.
Agronomy, T., Th.
4:30—Animal Husbandry, M., W.
Agronomy, T.

THE COURSE FOR COUNTY AGENTS.

(July 18 to Aug. 27).

The work of this division is planned to meet the needs of persons who desire to better prepare themselves for county agent work. The duties of an efficient county agent requires that he have a knowledge of the elementary principles underlying agricultural practice, as well as successful farm experience. In the future no person will be appointed to a position as county agent in Texas who does not have, in addition to successful and satisfactory farm experience, a general knowledge of the principles underlying modern agricultural practice, and who cannot satisfactorily pass an examination as provided for in the following "rider" which was attached to the appropriation bill for the Agricultural and Mechanical College by the Thirty-Sixth Legislature:

> "Provided further, that no salary provided for in the Extension Service section of this act shall be paid to any person who has not first stood a satisfactory examination before the faculty of the Agricultural and Mechanical College of Texas, or a committee of not less than five selected from said faculty by the president of the Agricultural and Mechanical College. Said examination shall be conducted at such times and places and shall embrace such subjects as shall be decided upon by the faculty or committee herein provided for."

The courses of study in this division have been carefully outlined to meet the needs as stated above. They are as follows:

Agricultural Engineering. (2-6).

This course deals with the construction of farm terraces, the use of tractors and gasoline engines on the farm, improved farm machinery and farm buildings.

Agronomy. (4-2).

A course dealing with the principles of soil management and soil improvement, and the important tillage practices involved in the production of field crops, together with special instruction relative to seed selection.

Animal Husbandry. (1-4).

A general course briefly covering the judging and management of the various classes of farm animals adapted to Texas conditions.

Dairy Husbandry. (1-4).

This course will be devoted to the judging, feeding, breeding, care and management of dairy cattle, and the care and handling of dairy products.

Entomology. (3-0).

This course will comprise a discussion of the life histories of the most important insects which attack field and forage crops and those which affect fruits and vegetables. Some time will also be given to the study of parasites of domestic animals and the best methods for controlling them. The course will be varied to suit the conditions of those who are interested in this course.

Extension Work. (2-0).

This course will take up the history of Extension Work and a study of the Extension Service organization and problems of Extension administration.

Horticulture. (1-4).

The first part of this course will include detailed instructions in planning, equipping, and operating vegetable gardens for home and commercial purposes.

The second part will be devoted to a discussion of the preparation and laying out of land for home and commercial orchards, planting the trees, cultivating, fertilizing, pruning, and spraying.

The practice periods will be devoted to practical instruction in mixing and applying fertilizers, spraying, laying out of orchards, pruning, etc.

Extemporaneous Speaking. (3-0).

The purpose in this course is the development of an effective style of extemporaneous speaking. The aim is to give the student increased efficiency in speech planning and in speech delivery, as well as a store of usable speech material. This course is intended for those who are facing practical problems in public speaking in the extension field, in teaching, or in similar lines of public service.

Rural Social Science. (3-0).

A discussion of some of the more important rural social problems.

Live Stock Sanitation. (3-2).

This course will deal with methods of preventing animal diseases. Special attention will be given to the common parasitic diseases.

These courses will be given in accordance with the following schedule:

7:30—Agronomy, M., T., W., Th.
8:30—Dairy Husbandry, T., Th., S.
Rural Social Science, M., W., F.
9:30—Horticulture, T.
Dairy Husbandry, Th., S.
Extemporaneous Speaking, M., W., F.
10:30—Agricultural Engineering, M., W.
Agronomy, T.
Live Stock Sanitation, S.
Extension Work, Th., F.
11:30—Agronomy, T.
Live Stock Sanitation, M., W., F., S.
1:30—Horticulture, T.
Entomology, M., W., F.
2:30—Agricultural Engineering, M., W.
Animal Husbandry, Th.
Horticulture, T.
3:30—Agricultural Engineering, M., W.
Horticulture, T.
Animal Husbandry, Th., F.
4:30—Agricultural Engineering, M., W.
Horticulture, T.
Animal Husbandry, Th., F.

THE FARMERS' SHORT COURSE.

(July 25 to July 30).

This course is planned to meet the needs of men and women who desire to farm on a better basis, and to make farmnig more profitable, and to make farm life more comfortable and attractive.

The teaching staff of the Farmers' Short Course will be composed of officers from the teaching division, the Experiment Station and the Extension Service of the College. There will also be several out-of-state speakers of national reputation.

Character of Work.

1. **Agriculture.**—Separate courses will be offered in the following departments: Agricultural Education, Agricultural Engineering, Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry, Plant Diseases, and Insects, and Veterinary Medicine.

2. **Home Economics.**—A special course in Home Economics will be offered to girls and women. The work will consist of lectures and demonstrations in cooking, canning, basket making, and household art. A special feature of this course will be the Canning Club Contest for the Farm and Ranch Loving Cup.

3. **Course for Boys.**—A special course will be offered for boys. The work will be given in judging livestock, farm machinery, gas engines, tractors, budding and grafting of plants, and the like. A special feature of this course will be the Live Stock Judging Contest for the Progressive Farmer's Loving Cup.

Entertainment.

It is the desire of the College authorities that the Short Course offer the people who attend an opportunity to secure valuable information and at the same time refreshing and wholesome entertainment. The evenings will be given over principally to motion pictures and musicals, and a part of each day will be set aside for special forms of entertainment, including the annual reception to women and girls, crowning of the Canning Club Queen, bathing parties, baseball games, etc.

For illustrated announcement, giving full information in regard to the Farmers' Short Course write Dean E. J. Kyle.

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BULLETIN
OF

The Agricultural and Mechanical College of Texas

Third Series, Vol. 6 February 1, 1920 No. 3

The Summer Session

JUNE 7—AUGUST 28, 1920

The Rural Life School (Six Weeks)
The Summer Normal (Eight Weeks)
The College (Twelve Weeks)
The School of Cotton Classing (Six Weeks)
The Farmers' Short Course (One Week)

COLLEGE STATION, TEXAS

Published twice a month by the Agricultural and Mechanical College of Texas

Entered as second class mail matter August 7, 1913, at the postoffice at College Station, Texas under the Act of August 24, 1912

ANNOUNCEMENTS

The Rural Welfare League of Texas will hold its third annual conference at the A. and M. College beginning Monday, June 21, and closing Saturday, June 26. The work as conducted will consist of classes and lecture courses on the fundamentals of religious, educational, and social work in the country, and on the most effective practical methods of meeting rural problems. This will be followed by a more general public conference, designed both to sum up the work of the classes and to afford information and inspiration for the many who can attend for only two or three days, and are, therefore, unable to take advantage of the preceding courses. All of this work will be conducted by men recognized as authorities in their respective lines. Inquiries should be addressed to the Secretary of the Rural Welfare League, College Station, Texas.

The Texas Farmers' Congress will hold its twenty-third annual session at the A. and M. College, August 2, 3 and 4, 1920. This Congress is an affiliation of agricultural, horticultural, live stock, educational and civic organizations, purposed to promote the agricultural and the kindred interests.

GENERAL STATEMENT

The summer session of the Agricultural and Mechanical College of Texas has been established for the following well defined purposes:

1. To provide courses of instruction in all phases of agriculture and in domestic economy, manual training, cotton classing, rural sanitation, rural economics, and rural sociology, for the benefit of teachers, rural ministers, county and local officers, farmers, farm women, rural merchants, and others who may be interested in any phase of agricultural or rural development.

2. To offer to young men having sufficient preparation the opportunity of taking courses for college credit, and also to permit students of the College to remove deficiencies or to pursue courses toward graduation.

3. To provide instruction for young men who need to review or take additional work as a preparation for examinations to enter this College.

4. To provide instruction in the various subjects required for State teachers' certificates.

The summer session is co-educational, and women are urged to take advantage of the work given, particulary that given in the Rural Life and Summer Normal Divisions.

The summer session will begin June 7, 1920.

MAIN ENTRANCE TO THE CAMPUS

CALENDAR

SUMMER SESSION, 1920

Monday, June 7—Registration day for students in Rural Life, College and Cotton Classing Divisions.

Monday, June 21—Registration day for Summer Normal students.

July 4—Holiday.

July 17—Rural Life School, Cotton Classing School and the first term of the College Division end.

July 19—Second term of College Division begins.

July 26—Farmers' Short Course begins.

July 31—Farmers' Short Course ends.

Aug. 2—Farmers' Congress begins.

Aug. 4—Farmers' Congress ends.

Aug. 16, 17, 18, 19—Summer Normal examinations.

Aug. 19—Summer Normal ends.

Aug. 28—Second term of College Division ends.

Agricultural and Mechanical College of Texas

WILLIAM BENNETT BIZZELL, M. A., D. C. L., LL. D., *President.*

SUMMER SESSION, 1920.

Executive Committee of the Faculty for the Summer Session

J. OSCAR MORGAN, M. S. A., PH. D.,
Professor of Agronomy,
Chairman.

CHARLES PURYEAR, M. A., C. E., LL. D.,
Dean of the College.

J. C. NAGLE, M. A., C. E., M. C. E.,
Dean of the School of Engineering.

C. P. FOUNTAIN, A. M.,
Professor of English.

MARTIN L. HAYES, B. S., A. M.,
Professor of Vocational Teaching.

Officers of Administration

WILLIAM BENNETT BIZZELL, M. A., D. C. L., LL. D., *President.*

CHARLES PURYEAR, M. A., C. E., LL. D., *Dean of the College.*

JAMES OSCAR MORGAN, M. S. A., PH. D., *Director of Summer Session.*

J. H. MORGAN, Superintendent of Schools, Eagle Lake,
Conductor of Summer Normal.

IKE ASHBURN, *Commandant.*

WALTER WIPPRECHT, B. S. A., *Business Manager.*

CHARLES E. FRILEY, B. S., *Registrar.*

M. A. MILLER, M. A., *Y. M. C. A. Secretary.*

S. H. HICKMAN, *Superintendent of Y. M. C. A. Building.*

MISS WESA WEDDINGTON, PH. B., M. A., *Preceptress.*

T. F. MAYO, *Librarian.*

Faculty of the Rural Life School

J. O. MORGAN, M. S. A., PH. D.,
Professor of Agronomy.

MARTIN L. HAYES, B. S., A. M.,
Professor of Vocational Teaching.

J. W. RIDGWAY, M. S.,
Professor of Dairy Husbandry.

F. B. CLARK, M. A., PH. D.,
Professor of Economics.

S. W. BILSING, M. A.,
Professor of Entomology.

A. T. POTTS, B. S., M. S. C., M. S. A.,
Professor of Vegetable Gardening.

W. A. BROYLES, B. S., M. A.,
Professor of Agricultural Education.

F. HENSEL, M. S.,
Associate Professor of Horticulture.

J. H. KRAFT, A. B., B. S.,
Associate Professor of Agricultural Education.

T. J. CONWAY, B. S.,
Associate Professor of Poultry Husbandry.

W. L. STANGEL, B. S., A. M.
Associate Professor of Animal Husbandry.

LEROY RHODES, B. S., A. E.,
Associate Professor of Agricultural Engineering.

W. E. WHITE, B. S.,
Assistant Professor of Horticulture.

R. E. BOSQUE, B. S.,
Assistant Professor of Agricultural Engineering.

Faculty of the College Division

J. O. MORGAN, M. S. A., PH. D.,
Professor of Agronomy.

J. C. BURNS, B. S.,
Professor of Animal Husbandry.

A. MITCHELL, B. C. E.,
Professor of Drawing.

M. L. HAYES, B. S., A. M.,
Professor of Vocational Teaching.

F. B. CLARK, M. A., PH. D.,
Professor of Economics.

R. F. MILLER, M. S.,
Professor of Sheep Husbandry.

A. T. POTTS, B. S., M. S. C., M. S. A.,
Professor of Vegetable Gardening.

R. F. SMITH,
Professor of Mathematics.

W. A. BROYLES, B. S., M. A.,
Professor of Agricultural Education.

C. A. WOOD, M. S.,
Associate Professor of Agronomy.

F. HENSEL, M. S.,
Associate Professor of Horticulture.

H. R. BRAYTON, A. B., M. S.
Associate Professor of Chemistry and Chemical Engineering.

L. B. FIELDS, B. S.,
Associate Professor of Industrial Education.

CHARLES MARTEN, B. S., M. A.,
Associate Professor of Industrial Education.

T. J. CONWAY, B. S.,
Associate Professor of Poultry Husbandry.

J. H. KRAFT, A. B., B. S.,
Associate Professor of Agricultural Education.

LEROY RHODES, B. S., A. E.,
Associate Professor of Agricultural Engineering.

J. A. CLUTTER. B. S.,
Associate Professor of Dairy Husbandry.

D. W. WILLIAMS, B. S., M. S.,
Associate Professor of Animal Husbandry.

W. H. MCPHEETERS, B. S.,
Assistant Professor of Physics.

W. A. STONE, B. S.,
Assistant Professor of Chemistry.

A. D. SUTTLE, B. S. A.,
Assistant Professor of Agronomy.

R. E. BOSQUE, B. S.,
Assistant Professor of Agricultural Engineering.

R. K. FLETCHER, M. S.,
Assistant Professor of Entomology.

W. E. WHITE, B. S.,
Assistant Professor of Horticulture.

E. O. SLATER,
Assistant Professor of Mechanical Engineering.

E. M. REGENBRECHT, B. S.,
Instructor in Animal Husbandry.

R. W. DOWNARD,
Machinist, Mechanical Engineering Department.

Faculty of the Summer Normal

J. H. MORGAN, *Superintendent Eagle Lake Public Schools, Conductor, History of Education, Trigonometry, Physical Geography.*

J. H. SHEPPEARD, A. B., *Superintendent Winnsboro Pubic Schools, Algebra, Geometry, Composition.*

J. C. TUCKER, B. S., *Superintendent Brenham Public Schools, Chemistry, Physics, Bookkeeping.*

L. G. ANDREWS, *Superintendent Navasota Public Schools, General History, Civics, Literature.*

J. W. O'BANION, *Superintendent Calvert Public Schools, United States History, School Management, Texas History.*

W. L. POWERS, *County Superintendent, Brazos County, Descriptive Geography, Arithmetic, Physiology and Hygiene.*

W. E. WHITE, B. S., *Assistant Professor of Horticulture, A. and M. College of Texas, Agriculture.*

MISS HATTIE MATTHEWS, *Primary Supervisor Navasota Public Schools, Primary Methods, Spelling, Reading.*

MISS WESA WEDDINGTON, PH. B., M. A., *Latin and Language Teacher, Bryan Public Schools, Preceptress, Psychology, Grammar.*

BERNARD SBISA HALL, WHERE ALL SUMMER SESSION STUDENTS TAKE THEIR MEALS

ORGANIZATION

The work of the 1920 summer session will be given in the following five divisions:

1. The Rural Life School.
2. The Summer Normal.
3. The College.
4. The School of Cotton Classing.
5. The Farmers' Short Course.

ADMISSION REQUIREMENTS.

In the College division courses will be offered subject to the same general requirements as in the regular session.

There are no fixed requirements for admission to the Rural Life School, the School of Cotton Classing or the Farmers' Short Course. Applicants for Summer Normal certificates must meet the legal requirements with reference to age.

DISCIPLINE.

Every student in the summer session is expected at all times to conform to the ordinary rules of propriety and gentlemanly conduct; to be truthful; to respect the rights of others; to be punctual and regular in attendance upon all required exercises; to apply himself diligently to his studies; and to have due regard for the preservation of College property.

BOARD AND ROOMS.

Cadets of the College will take their meals in the main dining hall. Other summer session students will take their meals in the new dining hall annex.

This hall is conveniently located with reference to dormitories, lecture rooms, and laboratories.

Room accommodations will be provided for summer session students in new, modern, fireproof dormitories.

As a result of recent legislative appropriations, extensive repairs have been made on all dormitories with the result that these buildings are modern in every respect, including screens for protection against mosquitoes and flies, sewage connections, electric lights and running water. The women's dormitory will be in charge of a capable preceptress, who will look after the general welfare of the women. The men's dormitories will be in direct charge of a summer session official, who will see that study hours are observed and that proper conditions for work are maintained.

The cost of room and board for the six weeks term will be $48.00, and for the eight weeks' Summer Normal, $64.00. This does not include laundry. Bed linens, pillows and towels will be furnished by the student. All beds are single.

LOCATION.

The Agricultural and Mechanical College of Texas is located at College Station, on the Houston & Texas Central Railroad, and on the Fort Worth division of the International & Great Northern Railroad, ninety-five miles north of Houston. Both railroads run through the College grounds. The stations are only a short distance from the Academic Building. At College Station there are express, telegraph, and money order offices.

COLLEGE FACILITIES.

All the educational facilities of the College will be placed at the disposal of the students of the summer session. The College plant consists of twenty-five brick buildings. Nine of these are used for dormitories and sixteen for purposes of instruction. All buildings used for instruction are well equipped with laboratories. The Horticultural gardens, Agronomy plots, and Greenhouses are conveniently located, and form a part of the outside facilities for instruction.

The library of the College consists of the central collection, and several departmental libraries. The general library is housed in the Academic Building and consists of about 25,000 volumes devoted to general literature and reference work. All the leading magazines and a number of daily papers are received at the library. All College departments have well selected technical libraries for the use of students interested in special subjects. The general library will be open during the summer session on week days from 9 a. m. until 5 p. m. and from 8 to 10 p. m. Departmental libraries will be open from 8 a. m. to 5 p. m.

The College Exchange Store, located on the first floor of the Academic Building, will carry a complete line of the text-books, reference books, stationery, and general supplies needed by summer session students.

PUBLIC LECTURES.

Lectures on pedagogical, sociological, and agricultural subjects will be given by the members of the teaching staff and by others invited for this purpose.

On each Sunday morning a regular Bible school will be conducted at the College, and religious services will be conducted in the College Chapel by visiting ministers.

ENTERTAINMENT.

Two motion picture shows will be given each week. An open air theater has been provided for all picture shows and other evening entertainments. The Y. M. C. A. will be open all summer and a number of social gatherings will be held in the lobby of this building. The hostess of the Y. M. C. A. will give special attention to the social welfare of the women. The large swimming pool in the basement of the Y. M. C. A. building will be available for the use of the summer session students during the entire session. The instructor in athletics will give lessons in swimming to those who desire them. Outdoor athletic sports will be encouraged. The summer session is a member of a small baseball league and games are played with local teams.

EXPENSES.

Incidental fee (to be paid by all students except those in the School of Cotton Classing)	$ 5.00
Tuition fee for Summer School of Cotton Classing	25.00
Examination fee for those taking Summer Normal examinations	1.00
Room and board per term of six weeks	48.00
Room and board per term of eight weeks (Summer Normal)	64.00

Each student in the summer session will be required to deposit a trust fund of $5.00 to cover breakage of laboratory material or damage to College property. The unused portion of this will be refunded at the end of the session.

For further information address,

DIRECTOR OF THE SUMMER SESSION,
College Station Texas.

THE RURAL LIFE SCHOOL

(June 7 to July 17)

The work of this division will be given largely by the regular teaching staff of the College and will include courses in agricultural education, agricultural engineering, rural sociology, rural economics, agronomy, animal husbandry, dairying, and horticulture.

These courses are so planned as to be of special interest to teachers as well as to furnish valuable training for persons not desiring to teach. With the increased demand for vocational training in the secondary and rural schools particularly that pertaining to agriculture comes the problem of securing adequately trained teachers. It is to this rural life school that these teachers must look for the greater part of this training. Every young man in the State who expects to make farming his life's work owes it to himself and to the State to increase his efficiency as a farmer to the greatest degree possible. The present scarcity of farm labor and the increased demand for farm products make this increased efficiency nothing short of imperative. Also the larger view of the farmer's place in society requires of him, as of all other members of society, the fullest possible returns compatible with economic principles and the requirements for a permanent agriculture. Rural teachers and prospective farmers will find in this rural life school opportunities for extending their knowledge of country life affairs that are unequalled elsewhere in the State. Not only will the student have at his command all of the regular teaching equipment and facilities of the College, but to this will be added the opportunity for contact with the research work of the Experiment Station, particularly along the lines of soil fertility, crop production, horticulture, dairying and live stock feeding, breeding and management.

The courses in this division are as follows:

Note:—The figures in parentheses following the name of a course indicate the number of hours per week, theory and practice, respectively, devoted to the course.

VOCATIONAL TEACHING.

51. High School Agriculture. (*6-6*).

For a description of this course see Agricultural Education 402S, page 28.

52. Agricultural Extension and Demonstration. (*6-6*).

For a description of this course see Agricultural Education 404S, page 28.

53. Rural Education. (*9-0*).

For a description of this course see Agricultural Education 403S, page 28.

AGRICULTURAL ENGINEERING.

56. Farm Terracing. (*0-4*).

Practice in differential and profile leveling, use of precise and home-made levels in location of terraces, adjustment of levels, construction of the broad terrace and soil-saving dam. Trips will be made to terraced fields and one or more lectures illustrated with slides will be given.

57. Tractors. (*2-4*).

A practical study of the use, care, adjustment, and repair of gas engines and tractors and their application to farm work.

Laboratory practice to consist of operating and adjusting gas engines and tractors under practical farm conditions.

AGRONOMY.

61. Soils and Fertilizers. (*5-4*).

In this course the science of soils, soil management and the use of fertilizers and manures will be presented in a simple and practical way. The work will be given according to the following outline:

Soil formation; texture and structure of soils; organic matter; soil water; plant-food materials in soils; acid soils and alkali soils; the germ life of the soil; soil air and soil temperature; the use of fertilizers and manures; crop rotation as a means of maintaining soil productiveness.

Text: Soils and Fertilizers, Lyon.

In the soils laboratory the student will perform a number of experiments involving the principles taught in the class room.

62. Field Crops. (*5-2*).

A course dealing with the structure, breeding, fertilization, tillage practices, and methods of harvesting and storing the important Southern field crops, such as cotton, corn, oats, wheat, rye, barley, rice, sugar cane, and peanuts.

Text: Southern Field Crops, Duggar.

63. Farm Management. (*5-2*).

In this course the student will study the farm as a business unit. Methods of calculating farm profits, farm records and accounts, types of farming, cropping systems, live stock and soil fertility as related to farm organization, are some of the topics featured.

Text: Warren's Farm Management.

Practice will be given in the keeping of farm accounts, the calculation of farm profits and the analysis of records of successful and unsuccessful farms.

ANIMAL HUSBANDRY.

66. Market Types and Breeds of Live Stock. (*4-4*).

This course will involve a study of the principal market types of horses, cattle, sheep and hogs, and the origin, history, characteristics, and adaptability of the leading breeds.

Text: Types and Market Classes of Live Stock, Vaughn; Types and Breeds of Farm Animals, Plumb.

The practice will consist of actual work in scoring individual animals and in judging groups of animals representing the different market classes and the leading breeds.

67. Live Stock Feeding. (*5-2*).

In this course the principles of animal nutrition, including the composition and digestibility of feeding stuffs and the disposition made of the different feed constituents by animals, will be treated fully. Much attention will be given to calculating rations for the various classes of farm animals—horses, cattle, sheep and hogs—and the best methods of feeding for different purposes.

INTERNATIONAL STUDENTS' LIVE STOCK JUDGING TEAM OF THE A. AND M. COLLEGE OFT EXAS, WHICH WON HIGH HONORS IN THE 1919 CONTEST HELD IN CHICAGO

From left to right: K. J. Edwards, Gainesville; D. L. Stevens, Mexia; L. R. Reed, Sterling City; W. T. Burns, Houston; W. B. Cook, Bryan; W. W. Derrick, Thorp Springs; W. L. Stangel, Coach. This team not only won high honors in the contest but also the high team in judging hogs and horses and second in judging cattle.

Text: Feeds and Feeding, Henry and Morrison.

The practice will consist chiefly in calculating rations and in investigating feeding operations that are being carried on by the College and Experiment Station.

68. Poultry. (*4-2*).

This will be a general course of farm poultry and will treat of the breeds and types of poultry; the principles of breeding and mating of

fowls; incubation and brooding; feeding for growth and egg production; winter and summer management; housing and hygiene; sanitation, disease, parasites, and their treatment; preparing poultry products for market; marketing.

Text: Poultry Production, Lippincott.

The laboratory work will consist of the study of breeds and types; incubators and brooders; house construction and types of houses; caponizing; candling and grading eggs and poultry; also work in killing and picking; and poultry management.

DAIRY HUSBANDRY.

72. Farm Dairying. (*5-4*).

This course deals with the care, management, and feeding of dairy cattle under southern conditions.

Text: Dairy Cattle and Milk Production, Eckles.

INTERNATIONAL STUDENTS' LIVE STOCK JUDGING CONTEST TROPHY
Won in 1913 and 1919 by the A. and M. College of Texas.

The practice will deal with the testing and care of dairy products, the handling of farm separators, and the making of farm butter.

ECONOMICS.

73. Rural Sociology. (*3-0*).

The purpose of this course is to stimulate discussion of sociological problems peculiar to rural sections. Such problems as the psychology of farm life, the structure of rural society, rural social centers, country

clubs, country fetes, rural surveys, etc., will be under discussion. To the sociologist no social defect must be taken as a matter of course, hence the problems will be discussed with the idea of setting forth practical plans of reform. The text will be supplemented by reports from outside reading.

Text: Rural Life, Galpin.

74. Rural Economics. (*9-0*).

This course is the same as Economics 407S, described on page 32.

ENTOMOLOGY.

75. Economic Entomology. (*5-2*).

The study of insects is rapidly growing in importance. The number of pests of our farm crops, fruit, etc., is constantly increasing. This course will cover a brief study of the most important insect pests affecting the farm, garden, and orchard. The laboratory work will consist in getting acquainted with the more important insect pests under field conditions and a study of the various insecticides by which these insects are controlled.

Text: Sanderson's Pests of Farm, Orchard and Garden.

HORTICULTURE.

76. Plant Propagation and Orcharding. (*5-3*).

For a description of this course see Horticulture 301S, page 33.

77. Vegetable Gardening. (*4-4*).

Detailed instruction in planting, equipping and operating vegetable gardens for home and commercial purposes, and practical demonstrations and experience in the field; a thorough discussion of the methods used in Texas in growing the most important vegetable crops.

Text: Lectures and recitations.

The practice is devoted to the building of hotbeds, cold frames, the mixing and application of fertilizers, planting, cultivating, spraying and harvesting of vegetable crops.

Schedules of Courses for Rural Life School

THEORY.

8—Soils and Fertilizers, daily.
Market Types and Breeds of Live Stock, M., T., W., Th.
Rural Sociology, M., W., F.

9—Field Crops, daily.
Vegetable Gardening, M., T., W., Th.
Poultry, T., W., Th., F.
Tractors, M., W.
Vegetable Gardening, M., T., W., Th.

10—Farm Management, daily.
Economic Entomology, daily.
Farm Dairying, daily.

11—Live Stock Feeding, daily.
Plant Propagation and Orcharding, daily.

PRACTICE.

1—Soils and Fertilizers, M.
Tractors, M.
Vegetable Gardening, M.
Farm Terracing, T.
Market Types and Breeds of Live Stock, W.
Live Stock Feeding, Th.
Farm Management, F.

2—Soils and Fertilizers, M.
Tractors, M.
Vegetable Gardening, M.
Farm Terracing, T.
Plant Propagation and Orcharding, T.
Market Types and Breeds of Live Stock, W.
Live Stock Feeding, Th.
Farm Management, F.

3—Soils and Fertilizers, M.
Tractors, M.
Vegetable Gardening, M.
Farm Terracing, T.
Plant Propagation and Orcharding, T.
Market Types and Breeds of Live Stock, W.
Economic Entomology, W.
Poultry, Th.
Field Crops, F.
Farm Dairying, F.

4—Soils and Fertilizers, M.
Tractors, M.
Vegetable Gardening, M.
Farm Terracing, T.
Plant Propagation and Orcharding, T.
Market Types and Breeds of Live Stock, W.
Economic Entomology, W.
Poultry, Th.
Field Crops, F.
Farm Dairying, F.

THE SUMMER NORMAL

(June 21 to August 14)

In this division the subjects required for all the grades of teachers' certificates will be offered, including primary methods.

Instruction will be given by successful school superintendents and teachers, assisted by members of the regular teaching staff of the College.

The Summer Normal is organized under the authority of the State Superintendent of Public Instruction. The instruction in the subjects required for teachers' certificates will conform to the outlines, recommended text-books, laboratory requirements, etc., of the State Superintendent of Public Instruction. The final examinations will be held at College Station on August 16, 17, 18, and 19.

The outlines of work and the recommended text-books for the 1920 Summer Normal, as sent out by the State Superintendent of Public Instruction, are given below.

Note:—The numeral following the name of a subject indicates the number of periods per week theory, and the number of hours per week practice, respectively, devoted to the course.

Until the Summer Normal examinations, beginning August 16, examinations for teachers will be based on the Course of Study given in Bulletin 100, the Summer Normal Bulletin of 1919. The text-books listed below will be used in the Summer Normals of 1920 and 1921, if the present administration is continued, and unless changes should be made in State adopted texts. These books are selected for two years' use in order that schools purchasing books may not be compelled each year to change.

SECOND GRADE SUBJECTS.

1. Agriculture. (5-0).

Warren's Elements of Agriculture (MacMillan Company, Southern School Book Depository, Dallas, Texas), and Ferguson and Lewis' Elementary Principles of Agriculture (Ferguson Publishing Company, Southern School Book Depository, Dallas, Texas).

2. Arithmetic. (5-0).

Wentworth and Smith's Essentials of Arithmetic for Grammar Grades (Ginn and Company, Dallas, Texas).

3. Geography, Descriptive. (5-0).

Tarr and McMurray's New World Geography, Second Book (MacMillan Company, Southern School Book Depository, Dallas).

4. Grammar, English. (5-0).

Smith's Our Language Grammar (B. F. Johnson Co., Southern School Book Depository, Dallas).

5. History, Texas. (*5-0*).

A School History of Texas, by Parker, Potts, and Ramsdell (Row, Peterson, and Company, Southern School Book Depository, Dallas), and Pennybacker's Texas History (Texas School Book Depository, Dallas).

6. History, United States. (*5-0*).

Hall, Smither, and Ousley's A Student's History of Our Country (Southern Publishing Company, Dallas, Texas, Texas School Book Depository, Dallas) and Estill's Beginner's History of Our Country (Southern Publishing Co., Dallas, Texas School Book Depository, Dallas).

7. Physiology and Hygiene. (*5-0*).

Advanced Physiology and Hygiene by Conn and Budington (Silver, Burdett and Company, Southern School Book Depository, Dallas) and The Human Body and Its Enemies, by Hartmann and Bibb (World Book Co., Southern School Book Depository, Dallas).

ACADEMIC BUILDING IN WHICH ALL SUMMER NORMAL INSTRUCTION IS GIVEN.

8. Reading. (*5-0*).

Sections on *Reading* in Culter and Stone's The Rural School—Its Methods and Management and in Freeland's Elementary School Practice. (See School Management.)

9. School Management. (*5-0*).

Culter and Stone's The Rural School—Its Methods and Management (Silver, Burdett and Company) and Freeland's Modern Elementary School Practice (MacMillan Company). Questions from the sections on these two texts, explaining how to teach the elementary subjects of reading, writing, spelling, language, grammar, geography, history, etc.,

may be included in the teachers' examinations on these subjects. In addition pupils should be required to read the following books: Quick's "The Brown Mouse" (Bobbs-Merrill Co., Indianapolis), Kern's "Among Country Schools" (Ginn & Company, Dallas), Fought's "The Rural Teacher and His Work" (MacMillan Company, New York), and Dewey's "New Schools for Old" (F. P. Dutton Co., New York). These should be read, one each two weeks, and discussed in class. Each school should provide in its library at least one copy of each book to each twenty pupils taking the work; though one copy to each ten pupils would be preferable. Questions on these books assigned for reading will be optional, this method being taken of permitting credit to those who read these books. These texts may be ordered through the book depositories.

10. Writing. (*5-0*).

The questions will be taken from Culter and Stone's The Rural School--Its Methods and Management and Freeland's Modern Elementary School Practice. (See School Management.)

11. Spelling. (*5-0*).

New World Speller, Book II.

FIRST GRADE SUBJECTS.

12. Algebra. (*5-0*).

Wentworth's New School Algebra (Ginn and Company, Dallas, Texas).

13. Civil Government. (*5-0*).

Civics, Texas and Federal, by Triplett and Hauslein (Hercules Printing and Book Co., Texas School Book Depository, Dallas), and Ashley's New Civics (The MacMillan Company, Southern School Book Depository, Dallas).

14. Composition, English. (*5-0*).

Herrick & Damon's New Composition and Rhetoric (Scott, Foresman and Co., Texas School Book Depository, Dallas, Texas), and Merkley and Ferguson's Composition and Rhetoric (Newsome & Co., Southern School Book Depository, Dallas, Texas).

15. Geography, Physical. (*5-0*).

Tarr's New Physical Geography (MacMillan Co., Southern School Book Depository, Dallas).

16. Geometry, Plane. (*5-0*).

Wentworth & Smith's Plane Geometry (Ginn & Company, Dallas, Texas).

17. History, General. (*5-0*).

Ashley's Early European Civilization and Ashley's Modern European Civilization (MacMillan Company, Southern School Book Depository, Dallas, Texas).

SUBJECTS INCLUDED IN EXAMINATIONS FOR PERMANENT CERTIFICATES ONLY.

18. American Literature. (5-0).

Payne's History of American Literature and Payne's Selections from American Literature (Rand, McNally & Co., Chicago). This will be given as a separate subject from English literature, and will be so counted.

19. English Literature. (5-0).

Lang's English Literature (Ginn & Co.). Any standard collection of English Classics. This will be given as a separate subject from American Literature and will be so counted.

20. History of Education. (5-0).

Duggan's A Student's Text-Book in the History of Education (D. Appleton & Co., New York, Chicago).

21. Psychology. (5-0).

Freeman's How Children Learn (Houghton, Mifflin & Co., New York, Chicago).

22. Bookkeeping. (5-0).

Twentieth Century Bookkeeping and Accounting, Part I (Southwestern Publishing Co., Cincinnati, Ohio).

23. Chemistry. (5-0).

Brownlee's First Principles of Chemistry (Allyn & Bacon, Chicago, Southern School Book Depository, Dallas).

24. Geometry, Solid. (5-0).

Wentworth & Smith's Solid Geometry (Ginn & Company, Dallas, Texas).

25. Physics. (5-0).

First Principles of Physics by Carhart & Chute (Allyn & Bacon, Chicago, Southern School Book Depository, Dallas, Texas).

26. Trigonometry, Plane. (5-0).

Wentworth & Smith's Plane Trigonometry (Ginn & Company Dallas).

The Summer Normal Bulletin will be ready the last of April or first of May. It is expected to include in this, an outline course of study for use of Summer Normals. This bulletin will contain a list of the Summer Normals authorized for the summer of 1920.

Schedules of Recitations, Summer Normal Division

SUBJECTS.

7:30 to 8:15—English Grammar, daily.
Chemistry, daily.
Civil Government, daily.

8:20 to 9:05—Algebra, daily.
Primary Methods, daily.
History of Education, daily.
Elements of Agriculture, daily.

9:10 to 9:55—English Composition, daily.
Primary Methods, daily.
Physics, daily.
School Management, daily.
Trigonometry, daily.

10:00 to 10:45—Descriptive Geography, daily, one-half term.
Literature, Daily.
Physiology and Hygiene, daily, one-half term.
Plane Geometry, daily.

10:50 to 11:35—General History, daily.
Psychology, daily.
United States History, daily.

11:40 to 12:25—Arithmetic, daily.
Physical Geography, daily.
Solid Geometry, daily.
Texas History, daily.

2:30 to 3:15—Elements of Bookkeeping, daily.

THE COLLEGE

(June 7 to August 28)

All courses given in this division will carry credit toward graduation and are open only to those who have had the prerequisite training. The work of this division will be divided into two terms of six weeks each. The first term will begin June 7 and will end July 17. The second term will begin July 19 and will end August 28.

The basis for college credit is that three theory hours or six practice hours in a term of six weeks count as one term hour in the regular session.

The maximum amount of work a student may carry in a six weeks term is the equivalent of eight term hours, except in the case of men who have had approved teaching experience; with the consent of the Director of the Summer Session such men may carry the equivalent of nine term hours. All rules of the regular session apply to the summer session in the matters of prerequisites, grades, examinations, and class absences.

No courses for entrance credit will be given in this division. Students who desire to take work as a preparation for examinations to enter the College will be given this opportunity in the Summer Normal Division.

The right is reserved to withdraw any course for which less than five students register.

The courses for the first six-weeks term are as follows:

Note:—The figures in parentheses following the name of a course indicate the number of hours per week, theory and practice, respectively, devoted to the course.

VOCATIONAL TEACHING.

301S. Educational Psychology. (9-0).

This is a beginning course in Psychology with special emphasis on its application to the problems of teaching. Stress will be placed upon instinct, habit formation, memory, attention, and the psychological principles of industrial subjects in the curriculum. The principles of adolescence form an interesting chapter. The text is supplemented to a large extent by the use of lectures and references.

Text: The Mind and Its Education, Betts.

302S. Methods of Teaching. (9-0).

The fundamental principles of the aims and methods of the recitation are considered with their application to the conditions of the high school. Lesson plans and practice teaching in agriculture and other kindred subjects form an interesting and important part of the course.

Text: Methods of Teaching High Schools, Parker.

303S. High School Administration. (*9-0*).

This course deals with the organization and management of State, county and city school systems; the qualifications, duties and relations of school boards, superintendents, principals and teachers; school finances; school architecture and equipment; school curricula; formation, enlargement, and consolidation of school districts; certification of teachers; and the interpretation and application of the Texas school law. The course is intended to give a general view of the educative systems of the State and of the nation.

Text: Administration of Public Education in the United States. Dutton and Sneeden.

304S. High School Problems. (*9-0*).

A study of the relation of the high school to elementary school, college and community, reorganization of the curriculum with special attention to vocational subjects; equipment, discipline; daily schedules; records; and high school activities are included in this course. The

A SECTION OF THE AGRONOMY FIELD LABORATORY, USED FOR INSTRUCTIONAL PURPOSES

course is a detailed study of the administration of high schools, and is intended for those who are preparing to become teachers or principals of high schools.

Text: Principles of Secondary Education, Monroe.

306S. Methods of Teaching Industrial Education. (*9-0*).

This course deals with the relation of the instructor to production; methods of analyzing a vocation into lessons and arranging these lessons in instructional order; analyzing the operation, trade knowledge and teaching points in a lesson; methods of instruction; line of approach; lesson planning; effect of surroundings and materials upon instructional conditions; interest factors; planning short unit course in shop and related work.

Text: The Instructor, The Man, and The Job, Allen.

402S. Administration of High School Agriculture. (6-6).

This course is a study of the specific problems that confront the teacher carrying on the work of the department of agriculture in the high school. Among the topics discussed are: The selection of subject-matter suited to local conditions; agriculture in the curriculum; laboratory, field and home exercises; visual instruction; supervision of home projects; laboratory and library equipment; use and management of school farm; and community or extension work. The laboratory period will be used for the preparation of teaching material and for working out individual assignments connected with the work.

Text: Materials and Methods in High School Agriculture, Hummel.

403S. Rural Education. (9-0).

The primary purpose of this course is to make a study of rural education in its broad sense, with a view of preparing teachers and extension workers for more efficient service in rural communities. Some of the topics discussed are: Changes in rural education and the rural home, together with the factors affecting such changes; the school as a community center; other agencies to be co-ordinated; community play and recreation; and the redirected rural school.

Text: Rural Life and Education, Cubberley.

404S. Agricultural Extension and Demonstration. (6-6).

This course is intended to give a survey of the whole field of extension in agriculture and home economics, and to give practice that will prepare for actual field work. Among the topics discussed are: Evolution of extension in agriculture and home economics; general organization for extension; methods of extension; farm demonstration work; junior agricultural clubs; extension by experts; extension by railroads and commercial companies; and the training of extension workers. Agricultural Education 301, 302, and 403 are important to give preparation for this course, but they are not prerequisite. Lectures, assigned readings, and problems constitute the work of this course.

405S. Vocational Education. (9-0).

The purpose of this course is to give a clear understanding of the growth and importance of trade industrial and agricultural instruction, and to develop sympathy and enthusiasm for the introduction of vocational training in the public school. The history of the movement is traced; vocational schools are examined to discover their methods and content of subject-matter; and study is made of the nature and scope of vocational work carried on under the provisions of the Smith-Hughes Act.

413S. Related Subjects. (9-0).

This course deals with the problem of determining what related subjects should be taught in connection with the different short unit industrial courses. A discussion will be made of the content of such related subjects as mathematics, physics, drawing, chemistry, history, etc.

414S. Vocational Guidance. (*9-0*).

This course is devoted to a study of the methods, problems and administration of vocational guidance. The course will include a discussion of vocational guidance surveys and literature, supervision, analysis, possibilities of vocational guidance in regular school work, means of discovering vocational aptitudes, work of vocational counselors, and vocational bureaus.

415S. Educational Tests and Measurements. (*9-0*).

The teacher of agriculture is constantly being used in the smaller school systems in the State as principal or superintendent. It is necessary therefore, that the special teacher of agriculture have the opportunity of becoming acquainted with modern methods of measuring the results of teaching.

The purpose of this course is to give the teacher, the principal and the superintendent a working knowledge of educational tests. A study will be made of the various tests and measurements employed in measuring school room instruction.

416S. Administration and Supervision of Industrial Education. (*9-0*).

This course deals with the various problems encountered in introducing industrial education into a school system and in developing the work in its varied forms. Among the topics discussed are: The place of industrial education in the elementary school; the relation of industrial education to fine arts, nature study, geography, and arithmetic; organization of courses of study for high schools, technical schools, trade schools, and corporation schools; safety first; plans and equipment; selection of teachers; improvement of teachers in service; formulating programs; selection of text-books; class room management.

418S. Visual Instruction. (*4-10*).

The purpose of this course is to study the theory and principle of visual instruction and to acquire skill in the preparation and use of material for visual instruction. The course will include the designing and making of charts, use of the camera, making negatives, making lantern slides, coloring lantern slides, use of stencils, mimeoscope and projection lantern, operation and care of motion picture machines, graphic representation of data and the use of the cartoon. Instruction will also be given in preparation and display of materials for fairs and exhibits.

For Graduates.

505S, 506S. Organization and Management of Teacher-Training Departments. (*9-0*).

The purpose of this course is to train men for positions in departments of agricultural education. Among the topics to be considered are: The making of the curriculum for training teachers of vocational agriculture, the number and content of courses to be offered by the department of agricultural education, nature and importance of visual instruc-

tion, methods of conducting supervised teaching, and improvement of teachers in service.

507S, 508S. Direction and Supervision of Vocational Agriculture. (*9-0*).

The purpose of this course is to train men for positions of State directors or supervisors of vocational agriculture. Among topics to be discussed are: The history of vocational agriculture, the Smith-Hughes Act, agriculture in the high school curriculum, content of courses in agriculture, text-books and library, laboratory equipment, supervised home projects, records and reports, relation between supervisor and itinerant teacher, and improvement of teachers in service.

AGRONOMY.

301S. Soils. (*9-12*).

This course gives the student a rather comprehensive knowledge of the soil and its management. It is given according to the following outline:

(a) The soil as a medium for root development, including a study of rock and its products; the soil mass, together with the physical properties of the soil and their modification; the organic content of the soil.

(b) The soil as a reservoir for water, including the functions of water in plant growth; the amount of water in the soil; the movement of soil water, and the control of soil water.

(c) Plant nutrients in the soil, including a careful study of both micro-organisms and macro-organisms, as they influence soil productiveness.

(d) The soil air; composition and functions of.

(e) The heat of the soil; comprising a study of the sources; functions and means of modifying soil temperature.

(f) External factors in soil management; tillage, crop adaptation, etc.

Text: Soils, Lyon, Fippin, and Buckman.

In the laboratory the student applies the principles learned in the class room to the actual management of soils.

Prerequisite: Chemistry 101, 102.

402S. Farm Management. (*9-12*).

For a description of this course see page 35.

ANIMAL HUSBANDRY.

201S. Farm Poultry. (*6-6*).

This is a general course on Farm Poultry and treats of the breeds and types of poultry; the principles of breeding and mating of fowls; incubation and brooding; feeding for growth and egg production; winter and summer management; housing and hygiene; sanitation; disease; parasites and their treatment; preparing poultry for market, marketing. It deals with the practical application of these principles to general farm conditions.

Text: Poultry Production, Lippincott.

The practice work consists of the study of breeds and types, incubators and brooders, housing, judging of fancy and utility poultry, candling and grading, of eggs and poultry products, killing and dressing poultry.

CHEMISTRY.

101S, 102S. General Inorganic Chemistry. (9-9).

In this course the foundation principles of all chemical activity are fully discussed and demonstrated. The chemical elements and their compounds are then taken up separately and systematically. Industrial applications of the more important chemical processes are briefly described, and organic chemistry is touched upon. This course must precede all other chemical studies. An elementary course in physics should precede or accompany this course.

SUMMER SESSION STUDENTS JUDGING DAIRY BREEDS. DAIRY HUSBANDRY BARN IN BACKGROUND

Text: General Chemistry for Colleges, Alex. Smith.

General laboratory work, duplication of lecture experiments, and simple tests of technical importance.

DAIRY HUSBANDRY.

102S. Dairying. (9-6).

A course dealing with the secretion of milk, and the composition of milk and its products; the use and application of the lactometer in the determination of the total solids and adulterations; the various methods of cream raising and separation.

Text: Milk and Its Products, Wing.

DRAWING.

105S, 106S. Freehand Drawing. (*0-3*).

Drawing from geometrical solids, common objects, plaster casts, still life, to study form, proportion, light and shade; and in the second term special attention is given to measuring, dimensioning and describing machines, machine parts, engineering structures and details.

The course is varied to meet the practical needs of students in the different engineering departments.

113S, 114S. Descriptive Geometry. (*6-9*).

Class room exercises, quizzes, and lectures on general and special problems relating to points, lines, planes and solids; problems in shades and shadows and in perspective. Special attention is paid to the representation of objects, by orthographic projection, in the first and third angles.

Text: Descriptive Geometry, Giesecke and Mitchell.

201S. Mechanical Drawing. (*0-12*).

Standard conventional section lining, drawing of standard bolts, nuts, rivets and threads; helixes, elementary parts of machines and engineering structures.

Text: Mechanical Drawing, Part III, Giesecke.

Prerequisite: Drawing 113S.

202S. Mechanical Drawing. (*0-12*).

A continuation of course 201S, including patent office drawings, working drawings of machines, engineering structures and details. The student is required to carefully sketch and measure the model; then, from his dimensioned sketch he makes on detail paper and traces his working drawings.

This course is varied to meet the practical needs of students in the different engineering departments.

Prerequisite: Drawing 201.

ECONOMICS.

306S. Fundamental Principles. (*9-0*).

This course consists of the theory of economic activities concerning production, distribution, and consumption; and the practical problems of credit, banking, foreign exchange, monetary systems, co-operation, tariff, transportation, trusts, corporations, and finance and taxation. The assignments in the text will be supplemented by expositions and explanations by the instructor and by reports by the students.

Text: Principles of Political Economy, Gide.

407S. Rural Economics. (*9-0*).

On the basis of general principles and concepts developed in course 306S attention is here given to the bearing of these principles in agricultural life. The discussions in the time devoted to recitations will be developments of thoughts brought out in some suitable text. In the

light of these discussions, special studies will be made of different systems of land tenure, rural credits and co-operative movements.

Text: To be selected.

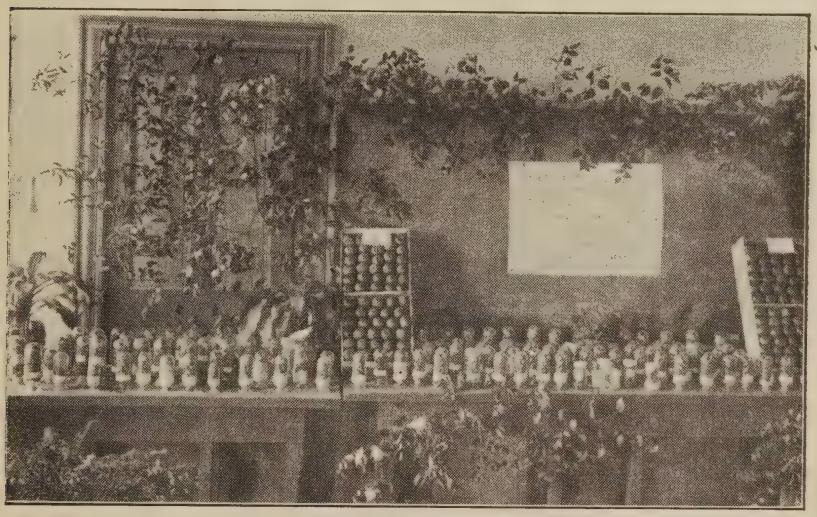
Prerequisite: Economics 306S.

ENTOMOLOGY.

201S. General Entomology. (6-6).

In this course the student is taught the systematic position of the various insects. The relation of the anatomy of insects to control measures is also studied. The life histories of the more common insects are given, together with the methods of control for the injurious forms.

Text: Elementary Entomology, Sanderson and Jackson.



HORTICULTURE.

201S. Plant Propagation and Orcharding. (9-6).

Lectures and recitations are given on the fundamental principles and methods of plant propagation and orcharding, including vegetables and fruit, and ornamentals.

Lectures and recitations.

Practice is given in propagation of plants from seed, budding, grafting and in planning, planting, pruning, spraying and general care of the orchard.

Text: Plant Propagation, Kains. Lectures.

Prerequisite: Biology 101, 102.

MATHEMATICS.

103S. Plane Trigonometry. (9-0).

Goniometry, review of logarithms, solution of right triangles, problems of heights and distances, properties of triangles, solution of oblique triangles, geometrical applications.

Text: Plane and Spherical Trigonometry, Taylor and Puryear.

104S. Analytics. (*9-0*).

The straight line, transformation of co-ordinates, circle, ellipse, parabola, hyperbola, graphs of trigonometric, logarithmic and exponential functions, tangents.

Texts: Analytic Geometry, Riggs; Supplementary Exercises.

Prerequisite: Mathematics 101, 103.

MECHANICAL ENGINEERING.

103S. Woodwork. (*0-9*).

Shop practice in the use of the common bench tools and power machinery for working in wood as applied to joinery, elements of construction, and cabinet making. Practice in the use of shop records, systems, etc., is also given. Special work will be provided for those who have had manual training before entering.

104S. Forging. (*0-9*).

Shop practice in the use of blacksmith and general forge tools in the working of iron and steel. Also tempering, annealing, welding, case-hardening, etc.

201S. Pattern Making and Foundry. (*0-9*).

Shop practice in pattern making, molding, and casting in iron, brass, etc.

Prerequisite: Mechanical Engineering 103S.

309S. Machine Shop. (*0-9*).

Practice in bench and machine tool work in metals. This includes chipping, scraping, filing, babbiting, pipe fitting, drilling, turning, boring, grinding, milling machine work, etc.

Prerequisite: Mechanical Engineering 104S.

311S. Carpentry and Cabinet Making. (*0-9*).

This course consists of the following two lines of practice:

(a) The carpentry of wood building construction, in which will be included making out bills of lumber and hardware for building, laying out rafters, stairs, etc., methods of framing, inside finish, etc.

(b) Cabinet making, including wood seasoning, accurate construction in hardwood, wood finishing, making of mill bills, also a limited amount of designing of simple cabinets.

Prerequisite: Mechanical Engineering 103S.

PHYSICS.

203S, 204S. General. (*9-9*).

A general course in mechanics, heat, light, electricity and magnetism for engineering students.

In this course particular stress is laid on the derivation of the various formulas necessary for a thorough understanding of the mathematical relations existing in physical determinations. Much emphasis is placed on practical problems furnished by the instructors.

The practice includes about thirty experiments in the subjects named above. The work is, in general, quantitative.

Text: Reed and Guthe's College Physics.

Prerequisite: Mathematics 101S, 103S.

All courses for the second six weeks' term are as follows:

VOCATIONAL TEACHING.

402S. Administration of High School Agriculture. (*6-6*).

For a description of this course see Agricultural Education 402S, page 28.

405S. Vocational Education. (*9-0*).

For a description of this course see Agricultural Education 405S, page 28.

418S. Visual Instruction. (*4-10*).

For a description of this course see Agricultural Education 418S, page 29.

AGRICULTURAL ENGINEERING.

315S. Farm Shop. (*3-18*).

This course is especially designed for those intending to teach agricultural engineering in vocational high schools. The work will include such subjects as are usually taught in vocational high schools and will include soldering, tinning, erection of line shafting, belt lacing, power transmission, pipe fitting, gas engines, fundamental principles in the care and operation of farm machinery and sufficient forging to enable the student to make ordinary farm repairs.

AGRONOMY.

302S. Farm Crops. (*9-12*).

In this course, all the leading field crops are studied with regard to structure, composition, races and varieties, breeding or improvement, soils, rotations, fertilizers, together with tillage operations, harvesting and marketing.

Text: Field Crops for the Cotton Belt, Morgan; Forage Plants and Their Culture, Piper.

In the laboratory, field, and greenhouse, the student makes a careful study of the leading characteristics of the different crops; seeds are studied as regards purity, and other points that determine value.

Prerequisite: Agronomy 301S; Biology 101S, 102S.

402S. Farm Management. (*9-12.*)

The application of all the principles taught in the various agricultural subjects to the business management of the farm. Farm problems and farm bookkeeping are featured. Different systems of farming are studied with reference to the equipment in land, labor, and capital for each; also crop rotations best suited to the different systems.

Text: Farm Management, Warren.

Practice work comprises a field study of available farms, planning and outlining systems of management best adapted to each. Attention

is given to the general layout of farm, size and shape of fields, condition of buildings, ditches, roadways, etc., and the necessary improvements are suggested.

Prerequisite: Agronomy 301, 302; Dairy Husbandry 102; Horticulture 201, 202.

ANIMAL HUSBANDRY.

201S. Farm Poultry. (6-6).

For a description of this course see Animal Husbandry 201S, page 30.

CHICK REARING ON THE COLLEGE FARM, AVAILABLE FOR USE OF STUDENTS IN SUMMER SESSION.

MECHANICAL ENGINEERING.

103S. Woodwork. (0-9).

For a description of this course see Mechanical Engineering 103S, page 34.

104S. Forging. (0-9).

For a description of this course see Mechanical Engineering 104S, page 34.

201S. Pattern Making and Foundry. (0-9).

For a description of this course see Mechanical Engineering 201S, page 34.

309S. Machine Shop. (0-9).

For a description of this course see Mechanical Engineering 309S, page 34.

311S. Carpentry and Cabinet Making. (0-9).

For a description of this course see Mechanical Engineering 311S, page 34.

Schedule of Courses in College Division

First Six Weeks Term

THEORY.

8—Vocational Teaching 405S, Vocational Education, daily.
Agronomy 301S, Soils, daily.
Agronomy 402S. Farm Management, daily.
Entomology 201S, General Entomology, daily.
Mathematics 103S, Plane Trigonometry, daily.
Drawing 113S, Descriptive Geometry, daily.
Physics 203S, General, daily.

9—Agronomy 301S, Soils, daily.
Agronomy 402S, Farm Management, M., W., F.
Chemistry 101S, General Inorganic Chemistry, daily.
Economics 306S, Fundamental Principles, daily.
Mathematics 103S, Plane Trigonometry, M., W., F.
Mathematics 104S, Analytics, T., Th., S.
Drawing 114S, Descriptive Geometry, daily.
Physics 203S, General, M., W., F.
Physics 204S, General, T., Th., S.

10—Dairy Husbandry 102S, Dairying, M., W., F.
Chemistry 101S, General Inorganic Chemistry, M., W., F.
Chemistry 102S, General Inorganic Chemistry, T., Th., S.
Economics 306S, Fundamental Principles, M., W., F.
Economics 407S, Rural Economics, T., Th., S.
Mathematics 104S, Analytics, daily.
Physics 204S, General, daily.

11—Dairy Husbandry 102S, Dairying, daily.
Chemistry 102S, General Inorganic Chemistry, daily.
Economics 407S, Rural Economics, daily.

1—Horticulture 201S, Plant Propagation and Orcharding, daily except S.

2—Horticulture 201S, Plant Propagation and Orcharding, M., W., F.

PRACTICE.

9—Dairy Husbandry 102S, Dairying, T., Th., S.

10—Dairy Husbandry 102S, Dairying, T., Th., S.
Agronomy 301S, Soils, M., W., F.
Drawing 202S, Mechanical Drawing, daily.
Drawing 201S, Mechanical Drawing, daily.
Drawing 113S, Descriptive Geometry, M., T., W., Th., F.
Drawing 114S, Descriptive Geometry, M., T., W., Th., F.
Drawing 105S, Freehand Drawing, S.
Drawing 106S, Freehand Drawing, S.

11—Drawing 105S, Freehand Drawing, F., S.
Drawing 106S, Freehand Drawing, F., S.
Agronomy 301S, Soils, M., W., F.

Drawing 202S, Mechanical Drawing, daily.
Drawing 201S, Mechanical Drawing, daily.
Drawing 113S, Descriptive Geometry, M., T., W., Th.
Drawing 114S, Descriptive Geometry, M., T., W., Th.

1—Chemistry 101S, General Inorganic, M., W., F.
Chemistry 102S, General Inorganic, T., Th.

2—Agronomy 402S, Farm Management, T., Th.
Chemistry 101S, General Inorganic, M., W., F.
Chemistry 102S, General Inorganic, T., Th.
Entomology 201S, General Entomology, T., Th.

3—Horticulture 201S, Plant Propagation and Orcharding, M., W., F.
Agronomy 402S, Farm Management, daily except S.
Chemistry 101S, General Inorganic, M., W.
Chemistry 102S, General Inorganic, T., Th., F.
Entomology 201S, General Entomology, T., Th.

4—Horticulture 201S, Plant Propagation and Orcharding, M., W., F.
Agronomy 402S, Farm Management, daily except S.
Chemistry 101S, General Inorganic, M.
Chemistry 102S, General Inorganic, T., F.
Entomology 201S, General Entomology, T., Th.

The time for each course in the following list will be arranged when the course is asked for:

VOCATIONAL TEACHING.

301S. Educational Psychology. (9-0).
302S. Methods of Teaching. (9-0).
303S. High School Administration. (9-0).
304S. High School Problems. (9-0).
306S. Methods of Teaching Industrial Education. (9-0).
402S. Administration of High School Agriculture. (6-6).
403S. Rural Education. (9-0).
404S. Agricultural Extension and Demonstration. (6-6).
413S. Related Subjects. (9-0).
414S. Vocational Guidance. (9-0).
415S. Educational Tests and Measurements. (9-0).
416S. Administration and Supervision of Industrial Education. (9-0).
418S. Visual Instruction. (4-10).

MECHANICAL ENGINEERING.

103S. Woodwork. (0-9).
104S. Forging. (0-9).
201S. Pattern Making and Foundry. (0-9).
309S. Machine Shop. (0-9).
311S. Carpentry and Cabinet Making. (0-9).

ANIMAL HUSBANDRY.

201S. Farm Poultry. (6-6).

Second Six Weeks Term

THEORY.

8—Agronomy 302S, Farm Crops, daily.
Agronomy 402S, Farm Management, daily.
Animal Husbandry 201S, Farm Poultry, daily.

9—Agronomy 302S, Farm Crops, daily.
Agronomy 402S, Farm Management, T., Th., S.
Animal Husbandry 104S, Live Stock Production (Hogs and Horses), daily.

1—Vocational Teaching 402S, Administration of High School Agriculture, daily except S.
Agricultural Engineering 315S, Farm Shop, M., W., F.
Animal Husbandry 103S, Live Stock Production (Beef Cattle and Sheep), daily.

2—Vocational Teaching 402S, Administration of High School Agriculture, F.

PRACTICE.

9—Agronomy 402S, Farm Management, W., F.

10—Animal Husbandry 104S, Live Stock Production (Hogs and Horses), daily.
Agronomy 302S, Farm Crops, M., W., F.
Vocational Education 402S, Administration of High School Agriculture T., Th, S.
Agronomy 402S, Farm Management, T., W., Th., F., S.

11—Animal Husbandry 104S, Live Stock Production (Hogs and Horses), daily.
Agronomy 302S, Farm Crops, M., W., F.
Agricultural Education 402S, Administration of High School Agriculture, T., Th., S.
Agronomy 402S, Farm Management, T., W., Th., F., S.

1—Agricultural Engineering 315S, Farm Shop, T., Th.

2—Animal Husbandry 201S, Farm Poultry, M., W.
Animal Husbandry 103S, Live Stock Production (Beef Cattle and Sheep), T., W., Th., F.
Agricultural Engineering 315S, Farm Shop, daily except S.

3—Animal Husbandry 201S, Farm Poultry, M., W.
Animal Husbandry 103S, Live Stock Production (Beef Cattle and Sheep), T., W., Th., F.
Agricultural Engineering 315S, Farm Shop, daily except S.

4—Animal Husbandry 201S, Farm Poultry, M., W.
Animal Husbandry 103S, Live Stock Production (Beef Cattle and Sheep), T., W., Th., F.
Agricultural Engineering 315S, Farm Shop, daily except S.

THE SCHOOL OF COTTON CLASSING

(June 7 to July 17)

The object of the School of Cotton Classing is to prepare young men for cotton buying and the managing of cotton warehouses, and to offer to farmers the opportunity of increasing their knowledge of the leading farm product of Texas.

A study is made of the elements which determine the commercial grades of cotton; the influence which affects the price of cotton; the system of financing the crop from field to factory, and the relation of exchanges to the business in general. New samples are placed each day on the cotton tables for practice, and the work is patterned somewhat after that of a cotton office.

Special attention will be paid to the staple of cotton, and experts in this branch will give instruction in this subject. Many samples of various lengths of staple will be provided for students taking up this line of work.

The government standards for classing cotton, which have been adopted by all the exchanges, will be used.

THE FARMERS' SHORT COURSE

(July 26 to 31)

This course is planned to meet the needs of men and women who desire to farm on a better basis, and to make farming more profitable, and to make farm life more comfortable and attractive.

The teaching staff of the Farmers' Short Course will be composed of officers from the teaching division, the Experiment Station, and the Extension Service of the College. There will also be several out-of-state speakers of national reputation.

CHARACTER OF WORK.

1. Agriculture.—Separate courses will be offered in the following departments: Agricultural Education, Agricultural Engineering, Agronomy, Animal Husbandry, Dairy Husbandry, Horticulture, Poultry, Plant Diseases and Insects, and Veterinary Medicine.

2. Home Economics.—A special course in Home Economics will be offered to girls and women. The work will consist of lectures and demonstrations in cooking, canning, basket making, and household art. A special feature of this course will be the Canning Club Contest for the Farm and Ranch Loving Cup.

3. Course for Boys.—A special course will be offered for boys. The work will be given in judging live stock, farm machinery, gas engines, tractors, budding and grafting of plants, and the like. A special feature of this course will be the Live Stock Judging Contest for the Progressive Farmer's Loving Cup.

ENTERTAINMENT.

It is the desire of the College authorities that the Short Course offer the people who attend an opportunity to secure valuable information and at the same time refreshing and wholesome entertainment. The evenings will be given over principally to motion pictures and musicales, and a part of each day will be set aside for special forms of entertainment, including the annual reception to women and girls, crowning of the Canning Club Queen, bathing parties, baseball games, etc.

For illustrated announcement, giving full information in regard to the Farmers' Short Course, write Dean E. J. Kyle.

....., Texas,

....., 1920.

To The Registrar,
A. and M. College of Texas,
College Station, Texas.

Dear Sir: It is my present intention to attend the 1920 summer session of the Agricultural and Mechanical College.

I shall probably register for the division and courses indicated below:

DIVISION.	COURSES.
Rural Life	.....
	.....
	.....
	.....
Summer Normal	.....
	.....
	.....
	.....
The College	.....
	.....
	.....
	.....
School of Cotton Classing	.....
Farmers' Short Course	.....

Yours very truly,

.....

(This information is for the convenience of the authorities of the Agricultural and Mechanical College, and does not bind the applicant in any way).

Please list below the names and addresses of others who might be interested:

NAME.	ADDRESS.
.....	.....
.....	.....
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.....	.....
.....	.....